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SUBTHRESHOLD PTSD AND ASSOCIATED PSYCHOLOGICAL DISTRESS IN
TRAUMA EXPOSED MALE AND FEMALE VETERANS

By

Matthew A. Southard, M.A.

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of
the requirements for the degree of Doctor of Philosophy, The City University of New
York

2018

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By

Matthew Southard

This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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ABSTRACT

SUBTHRESHOLD PTSD AND ASSOCIATED PSYCHOLOGICAL DISTRESS IN
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By

Matthew Southard, M.A.

Advisor: Denise Hien, Ph.D.

Post-Traumatic Stress Disorder (PTSD) represents the upper end of a stress-response continuum to traumatic events, rather than a discrete pathological syndrome (Ruscio, et al., 2002). Individuals with PTSD report higher levels of anxiety, depression, anger, aggression, and adjustment difficulties compared to non-traumatized individuals (Ginzburg, Ein-Dor, & Soloman, 2009; Thompson et al, 2011; Novaco and Chemtob, 2002; Kotler et al, 2001; Orth & Wieland, 2006). Subthreshold PTSD represents a less severe range on the stress-response continuum and these individuals may experience similar rates of symptoms of anger, aggression, and depression as those with full-PTSD (Jakupcak, et al., 2007; Mylle & Maes, 2004). Consequently, individuals with subthreshold PTSD are often overlooked in research studies, despite significant clinical factors associated with it that may affect overall functioning and recovery from trauma exposure. Additionally, men and women with PTSD report differing levels of aggressive and depressive symptoms than non-trauma exposed individuals. To help explain these findings, emotion regulation has been suggested to underpin the expression of these associated emotions and behaviors in trauma-exposed individuals, including anxiety, aggression, anger, and depression (Crevier et al., 2014). Using a cross-sectional study

design, the present study measured for possible difference in traumatic stress symptom severity groups (i.e. full-PTSD, subthreshold PTSD and no-PTSD) on self-report measures of anger, aggression, and depression in military veterans. This study supported other research studies indicating differences in the relationship between traumatic stress symptom severity and symptoms of anger, aggression, in depression in military service members. Contrary to research hypotheses, no gender differences were found in the associations between trauma severity and levels of anger, aggressive behaviors, and depression in military service members. Additionally, emotion regulation was not found to moderate the relationship between trauma severity and levels of aggression and depression in military service members. This study supports existing research by measuring the association between types of trauma severity and associated symptoms of distress, supporting additional treatment services for those individuals with subthreshold PTSD. This study contributes to existing PTSD research regarding gender differences in traumatic stress response groups, especially for subthreshold PTSD population. This study also expands on PTSD research by regarding the possible effects of emotion dysregulation on symptoms of aggression, and depression on trauma severity in veterans.

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Chapter 1: Introduction

Overview of the Study

Post-Traumatic Stress Disorder (PTSD) represents the upper end of a stress-response continuum to traumatic events, rather than a discrete pathological syndrome (Ruscio, et al., 2002). Individuals exposed to traumatic event(s) may experience a variety of trauma-related symptoms, however, not meet all necessary criteria for full-PTSD diagnosis. Individuals with “sub-threshold” PTSD may experience similar levels of symptoms associated with full-PTSD, such as depression, anxiety, anger and aggression (Jakupcak et al., 2007; Mylle & Maes, 2004; Stein, Walker, Hazen & Forde, 1997). These associated symptoms may manifest differently depending upon trauma severity. Additionally, research on PTSD often combines symptoms of emotional anger and aggressive behaviors into a single phenomenon, rather than viewing these emotional symptoms as two discrete psychological experiences (Renshaw & Kiddie, 2012). Although the experience of an angry emotion may result in the external expression of aggression, that is not always the case. Furthermore, gender differences may impact the relationships between trauma severity and emotional anger, aggressive behaviors and depression. Finally, emotion dysregulation as a result of traumatic experiences may negatively impact the expression of anger, aggression and depression symptoms in traumatized populations.

Interest in the area of sub-threshold PTSD arose from recent research on the psychological effects of trauma on military population, which often overlook subtle forms of trauma and associated outcomes. Examining the relationship between traumatic stress reaction and other symptoms will help highlight possible gender differences

between men and women. Additionally, further understanding is needed on the role of emotion regulation in the expression of comorbid trauma symptoms.

Individuals exposed to traumatic events may experience symptoms of post-traumatic stress disorder as a part of a stress reaction and cognitive processing of the trauma (Horowitz, 1986; Ehlers and Clarke, 2000; Foa and Rothbaum, 1997).

Theoretically, Horowitz (1986) describes a stress response theory of PTSD, which states that after the initial distress or shock, an individual is overwhelmed by their traumatic experiences. This leads to the mobilization of defense mechanisms, such as denial, dissociation and repression, which maintain the traumatic memory in the unconscious. This model states that the individual may experience symptoms of intrusions and avoidance as the traumatic information is brought to consciousness (Horowitz, 1986). Emotions, such as anger and depression may result from the activation of these defenses (Freud, 1917; Bloch, 1993). These defense mechanisms include reaction formation, projection and projective identification.

Early information-processing theories, such as Lang's emotion theory (1979), attempted to understand fear conditioning as phobic responding. Lang proposed that traumatic events were represented within memory as interconnections between different associative networks, such as emotional responses, physiological reactivity, and overt behavioral acts (Lang, 1969). Traumatic memories are then connected to complex fear networks, which are easily activated by stimulus that may be ambiguous but bear some resemblance to the contents of the memory. Therefore, when this network is activated, the traumatized individual experiences the same physiological reactions and tends to make judgments that connect with the original memory (Lang, 1979). Future cognitive

and emotional processing models of PTSD (Ehlers and Clarke, 2000; Foa and Rothbaum, 1997) expanded on Lang's theory by articulating that post-traumatic symptoms result from the individual's difficulty in processing the emotional experiences of the stressful event and that the difficulty is a consequence of rigid views about their safety and the safety of the environment, both before and after the traumatic event(s). These cognitive and social information processing models postulates three kinds of cognitive distortions that can occur resulting from trauma; the self as "incompetent", the world as "dangerous" and self-blame for the traumatic event. This conceptualization taps into ways of perceiving oneself and the external world that organize thoughts, feeling and behaviors. In response to these faulty perceptions, traumatized individuals associate previously benign stimuli with danger. This results in arousal and behavioral reactions in the form of emotional anger, aggressive behaviors and depressive symptoms (Ehlers and Clarke, 2000) in response to feeling that the world is not safe. Consequently, trauma impairs the ability to regulate/respond to stressful situations due to faulty cognitions about self and the world.

The traumatic stress response is conceptualized by some researchers as a spectrum disorder, rather than a distinctive diagnostic entity (Ruscio, et al., 2002; Moreau and Zisook, 2002). The lack of any spectrum or subthreshold diagnostic criteria for trauma reactions creates a dilemma for individuals who fail to meet all DSM-5 criteria for full-PTSD as they may not be able to receive adequate trauma-focused treatment. Previous research has found that subthreshold levels of PTSD are associated with significant impairment (Mylle & Maes, 2004; Zlotnick, Franklin, & Zimmerman, 2002) and may predict delayed onset of full-PTSD (Carty, O'Donnell, & Creamer, 2006).

Prevalence rates of subthreshold PTSD have been reported in the Vietnam Readjustment Study (NVVRS), which found that 11% of men and 8% of women veterans were found to have significant symptoms and distress but did not meet the full criteria of PTSD. This translated to an additional 350,000 men and women who were suffering with trauma-related symptoms in the aftermath of the Vietnam War, but did not meet diagnostic criteria at that time. Subthreshold levels of PTSD found in veterans have been shown to be associated with physical and mental health impairment, as well as limitations in occupational and interpersonal functioning (Grubaugh et al., 2005). In regard to associated psychological distress, research on subthreshold PTSD veterans found greater levels of anger and aggression than non-PTSD veterans (Jakupcak et al., 2007). Subthreshold PTSD population should be further researched to gain a better understanding of the range and severity of trauma-related symptomatology in order to inform prevention and intervention strategies.

Research on trauma has found that PTSD is associated with higher levels of anxiety and depressive symptoms (Thompson et al, 2011). PTSD is also associated with higher levels of emotional anger and aggressive behaviors in combat veterans (Novaco et al., 2002; Kotler et al, 2001). Consequently, research studies on PTSD and associated psychological distress often combine symptoms of emotional anger and aggressive behaviors into a singular construct rather than differentiated symptoms (Contractor, et al., 2014). “Anger” is defined as an emotional manifestation marked by hostile impulses, while “aggression” is defined as the behavioral expression of anger that can take the form of physical or verbal acts (Renshaw et al, 2012). Further research is needed to assess if individuals with subthreshold PTSD may have similar profiles of emotional anger,

aggressive behaviors, and depression as individuals with full-PTSD and higher levels than non-PTSD individuals (Jakupcak, et al., 2015). If individuals with subthreshold PTSD report similar profiles of anger, aggression, and depression, it would support the need for trauma-focused treatment for subthreshold PTSD population. However, if subthreshold PTSD individual do not report similar profiles to full-PTSD individuals, it may support the need for other treatment interventions to address symptomology.

Empirical studies on PTSD highlight gender differences in prevalence rates, with women reporting twice the rates of PTSD than men in the general population (Kimerling et al., 2009). Despite the increased levels of exposure to traumatic events for men, women are four times more likely to develop PTSD when exposed to the same traumatic event (Foa, 2008). Women's risk for PTSD remains high even when the type of trauma is controlled for (Gavranidou & Rosner, 2003; Tolin & Foa, 2006).

While gender differences have been reported in rates of full-PTSD, conflicting results have been found in regard to specific symptoms of emotional anger and aggressive behaviors in men and women with PTSD (Crevier et al., 2014). While associations between PTSD symptoms and aggressive behaviors have been established in studies of males with PTSD (Chemtob et al., 1994; Taft et al., 1999), research on whether women who are traumatized are also more likely to exhibit aggressive behaviors is equivocal and limited. For instance, studies have found males with PTSD report higher levels of state anger, irritability, verbal hostility, indirect hostility than women with PTSD (Galovski, Mott, Young-Xu, and Resick, 2011; Castillo, Baca, Conforti and Qualls, 2002). Conversely, a study on women exposed to traumatic events found similar associations between PTSD and rates of emotional anger, aggressive behaviors and

hostility as those which had been previously reported in male populations (Butterfield, 2000). Another study found no meaningful gender differences in the effect of interpersonal aggression on outcomes in traumatized individuals, once lifetime exposure to aggressive events was taken into account (Pimlott-Kubiak et al., 2003). Future research is needed to further understand possible underlying influences for the differences in emotional anger and aggressive behaviors in men and women with varying levels of PTSD symptomatology, especially with the increasing role of women in combat-oriented positions.

Theoretical and empirical literature highlight the association between PTSD and emotion dysregulation (Weiss, Tull, Anestis, & Gratz, 2013). Emotion regulation is a multifaceted construct, which may underpin the connection between trauma and associated psychological distress (Gratz & Roemer, 20014). Emotion regulation is the ability to assert some degree of control over one's emotions, such that one can experience a sense of stability and can easily transition between emotional states. Trauma may impact one's ability to regulate one's emotions and behaviors, which may cause further difficulties controlling other associated psychological distress, such as emotional anger, aggressive behaviors and depressive symptoms. Research is needed to examine the connection between trauma severity and emotion regulation, in addition to how this possible relationship is associated with other trauma-related symptoms of anger, aggression, and depression.

Study Aims

The present study, using self-report measures, examined the associations between symptoms of emotional anger, aggressive behaviors and depressive symptoms in traumatized individuals based on traumatic stress response grouping (i.e. full-PTSD, subthreshold PTSD and no-PTSD). The present study also examined possible gender differences between these groups, in addition to assessing for possible effects on emotion regulation on these relationships. This study examined traumatic stress reactions in a military population due the exposure to traumatic events while deployed. The first aim of this study looked to examine if PTSD severity, particularly subthreshold PTSD, impacts levels of depression, emotional anger and aggressive behaviors in veterans. The second aim was to look at the interaction between PTSD severity and gender in rates of emotional anger, aggressive behaviors and depressive symptoms. Third and finally, examined if emotional dysregulation influences the relationship between PTSD severity and associated psychological distress via emotional anger, aggressive behaviors and depressive symptoms.

Chapter 2: REVIEW OF THE LITERATURE

Overview

The present study examines the association between traumatic stress response (e.g. full-PTSD, subthreshold PTSD and no symptoms) and dependent symptoms of psychological distress in male and female veterans exposed to at least one traumatic event. A literature review is presented in the next three sections, beginning with conceptualization of trauma, current diagnosis of sub-threshold PTSD and gender differences. The next three sections will discuss trauma associated psychological distress symptoms of emotional anger, aggressive behavior and depression and will explore gender differences in these factors. Additionally, a conceptualization of emotional dysregulation and trauma will be used to further explore a common factor that may underline these associated psychological distress factors. A conceptual model of these interactions is illustrated by figure 1.

Traumatic Events and Traumatic Stress Response

Trauma Conceptualization

The diagnosis of Post-traumatic stress disorder (PTSD) per the DSM-5 (American Psychiatric Association, 2013) entails exposure to a traumatic event(s) and specific symptoms from each of four symptoms clusters: intrusion, avoidance, negative alterations in cognitions and mood, and alteration in arousal and reactivity, lasting more than 30 days and not attributed to a substance or co-occurring medical condition. *Traumatic events* are experiences that may include accidents, natural disasters, man-made disasters, military combat, war, motor vehicle accidents, violent crime, rape, sexual assault, and/or any other unusually violent event that humans may experience. *Traumatic stress response*

is an individual's reaction(s) to traumatic events, which may vary considerably, ranging from relatively mild disruptions in the person's life to severe and debilitating.

There are several theories on the development and maintenance of PTSD, from emotional, cognitive and behavioral perspectives. The first is stress response theory, developed by Horowitz (1976, 1986), which draws on information processing models as well as psychodynamic theory. This theory argues that, after initial distress or shock, an individual is overwhelmed by the realization of their traumatic experience. In response to this tension, psychological defense mechanisms are mobilized as the individual tries to assimilate the new trauma information with prior knowledge (Horowitz, 1976, 1986). This model proposes two opposing processes in traumatized individuals: suppression of traumatic memories and working through of the traumatic material by bringing it to consciousness (Brewin & Holmes, 2003). Consequently, the individual may not reconcile new and old thoughts and memories of the trauma, which may result in alternating periods of avoidance and intrusions (Horowitz, 1976, 1986). Individuals then experience intrusions, flashbacks, and nightmares as the trauma memories actively break into consciousness due to a lack integration of new trauma experiences with pre-existing structures (Horowitz, 1976, 1986). Failure to process and integrate trauma information into pre-existing structures leads to persistent post-traumatic reactions because the information remains in active memory and continues to intrude and be avoided (Brewin & Holmes, 2003). For example, the trauma-exposed individual may be in denial about the trauma, feel numb or avoid reminders of it. Additionally, emotional anger (a mobilizing defense) may also serve to avoid memories of the trauma (Novaco & Chemtob, 2002). Consequently, feelings of emotional anger and negative affect associated with avoidance

of trauma memories may lead to aggressive behaviors due to difficulties with emotion regulation (DiMauro, Renshaw & Kashdan, 2016).

Building upon Horowitz's stress-response theory, the cognitive (Ehlers & Clark, 2000) and emotional processing (Foa & Rothbaum, 2001) theories of PTSD suggest appraisals, cognitive distortions, and fear stimulus networks lead to the development of PTSD symptoms as part of the traumatic stress reaction. Cognitive theory of PTSD suggests that appraisals concerning perceived danger lead to fear, which is a violation of personal rules and unfairness, which lead to feelings of anger. Additionally, appraisals concerning perceived loss lead to feelings of sadness and depression (Ehlers & Clark, 2000). Instead of emphasizing the activation of defense mechanisms as being the source of trauma symptoms, the cognitive model states that trauma occurs when the individual has difficulty processing the emotional experience of a stressful event and that this difficulty is a consequence of rigid views about the safety of the self and the environment both before and after the traumatic experience. When that rigidly constructed sense of safety is overwhelmed by traumatic events, it results in the formation of an altered set of cognitive distortions concerning one's safety in the world and their incompetence. Cognitive theory of PTSD posits that individuals with PTSD develop a cognitive distortion that the world is dangerous and therefore live their lives in constant fear, which result in PTSD symptoms. Alternatively, emotional processing theory state that exposure to traumatic events cause trauma-related symptoms via ones' fear networks. Emotional processing theory states that fear is activated through associative networks that include information about the feared stimulus, escape, or avoidance responses to the feared stimulus, and the meaning of the fear (e.g. threat danger) (Foa & Rothbaum, 2001). These

negative appraisals and altered fear networks maintain PTSD by directly producing negative emotions (e.g. anxiety, depression or anger) and encourage individuals to engage in dysfunctional coping strategies that have the paradoxical effect of increasing PTSD symptoms. The nature of emotional responses in PTSD depends on the particular appraisals and/or activation of fear networks. For example, individuals with PTSD may be prone to interpreting ambiguous situations in more negative fashion than others and may thus be more prone to emotional distress in the form of anger and/or depression.

Post-traumatic Stress Disorder

PTSD is a traumatic stress response to “exposure to actual or threatened death, serious injury, or sexual violence” (APA, 2013). A *traumatic event* is an incident that causes physical, emotional, spiritual, or psychological harm, such as; severe care accident, serious illness, war, rape, natural disasters, etc. To meet diagnostic criteria for full-PTSD, an individual must endorse; exposure to a significant traumatic event (Criterion A) and report at least one intrusion symptom, such as flashbacks (Criterion B), one avoidance symptoms, such as avoiding trauma-related reminders (Criterion C), two negative alterations in cognitions and mood symptoms, such as overly negative thoughts and assumptions about oneself or the world (Criterion D), and two arousal symptoms, such as irritability or aggression (Criterion E) for the disorder, in addition to functional impairment and at least a 1-month duration (American Psychiatric Association, 2013). Lifetime prevalence rates of PTSD are reported at 10-12% for women and 5-6% for men (Olf, 2017). In trauma-exposed military samples, it is estimated that 12 to 20% met PTSD diagnostic criteria post-deployment (Hoge et al., 2007).

Subthreshold Post-Traumatic Stress Disorder

Individuals exposed to traumatic events may experience some, but not all necessary symptoms for a diagnosis of full-PTSD. Research suggests that most individuals experience at least some of the symptoms of PTSD following a traumatic event (American Psychiatric Association, 1994; Rothbaum et al., 1992; Steinglass and Gerrity, 1990). Those individuals who endorse some but not all necessary diagnostic criteria for this disorder would fall into the category of subthreshold PTSD. Lifetime prevalence of subthreshold PTSD ranges from 9.0% among psychiatric outpatients (Franklin et al., 2002) up to 22.5% of male and 21.2% of female Vietnam veterans (Weiss et al., 1992). Definitions of subthreshold PTSD vary, however, it is generally defined as meaningful PTSD symptoms that do not meet full DSM-5 diagnostic criteria for the disorder but show some impairment. Individuals with subthreshold PTSD endorse fewer trauma-related symptoms and fewer symptom clusters than those with full-PTSD and higher than non-trauma exposed individuals. Additionally, subthreshold PTSD is often defined as less symptoms severity and less functional impairment than full-PTSD and more than non-PTSD individuals.

Previous clinical research on subthreshold PTSD often used DSM-IV-TR criteria of PTSD to formulate a diagnosis. One of the most common definitions of subthreshold PTSD using DSM-IV criteria (Blanchard et al., 1992) requires one re-experiencing symptom and either three avoidance symptoms or two arousal symptoms, while experiencing significant distress and impairment. In contrast to full-PTSD, subthreshold PTSD is not a formal diagnosis per DSM-5 (American Psychiatric Association, 2013). Consequently, few studies have been published on DSM-5 criteria for subthreshold PTSD

due to lack of official diagnostic criteria. This could also be due to a delay in timing of research studies due to changes in the PTSD diagnosis to include the additional criterion of alterations in mood and cognitions (American Psychiatric Association, 2013). Studies on proposed subthreshold PTSD diagnosis using DSM 5 criteria are inconsistent in their definitions. The most common set of diagnostic criteria for subthreshold PTSD using DSM 5 classification requires exposure to actual or threatened death (Criterion A) and the endorsement at least two or three symptoms from either; intrusion (Criterion B), avoidance (Criterion C), negative alterations in cognition and mood (Criterion D) and/or arousal criterion (Criterion E) (McLaughlin et al., 2015; Mota et al., 2016). Prevalence rates of subthreshold PTSD, using the previous DSM-IV-TR criteria, yielded rates of 3.7% in a community sample (Stein et al., 1997), 11.1% in a survey sample (Zhang et al., 2004), and 7.0% among treatment-seeking psychiatric patients (Zlotnick, et al., 2002). Subthreshold PTSD population is often overlooked in research studies and examining associated features of subthreshold PTSD population will further the field by gaining a better understanding of the range and severity of trauma-related symptomatology in order to refine treatment recommendations for these individuals.

Trauma and Gender

Empirical studies on PTSD highlight gender differences in prevalence rates, with women reporting twice the rates of PTSD than men in the general population (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Despite the prevalence rates of PTSD in women being higher, men are more likely to be exposed to traumatic events (Kessler et al., 1995) and are more likely to report exposure to multiple traumatic events than compared to women (Stein et al., 1997). Despite the increased levels of exposure to

traumatic events for men, women are four times more likely to develop PTSD when exposed to the same traumatic event (Foa, 2008). Women's risk for PTSD remains high even when the type of trauma is controlled for (Gavranidou & Rosner, 2003; Tolin & Foa, 2006). Gender differences may be illuminated by applying the cognitive model of PTSD, which suggests one possible lens through which to view how gender may impact symptom development. For example, female trauma survivors may be more likely to view the world as dangerous, are more likely to blame themselves for the trauma (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999), and are more likely to hold more negative views of themselves than male trauma survivors (Tolin & Foa, 2002). Another possible explanation for gender difference in rates of PTSD may in part be due to gender socialization, which plays a significant role in the development of pre-trauma schemas (Krause, DeRosa, & Roth, 2002). With some women reporting more negative self-schema's associated with trauma than men, this may play a role in how they process trauma information and recover (Breslau et al., 1998). For example, studies of female trauma victims highlight the impact of gender identity on women's attempts to make sense of the traumatic experience during the recovery process (Lebowitz & Roth, 1994). Regarding biological changes associated with PTSD, a study found that there was greater suppression of dexamethasone in women than in men, indicating greater dysregulation of the glucocorticoid receptors (Yehuda, 2001). Additionally, women with PTSD have less memory loss and impairment in cognitive functioning than men with PTSD. Despite these differences in cognitive functioning in men and women with PTSD, these findings do not explain possible differences in cognitive interpretations or appraisals of traumatic events. Additionally, the findings do not address possible gender differences in

diagnostic clusters, such as; alternatives in cognitions or mood (Criterion D) as women report higher levels of depression than men in the general population, or arousal and reactivity (Criterion E) as men report higher levels of aggression than women in the general population. The present study will therefore aim to address these gaps in the literature.

Military Service Members and Trauma

In one recent study of military service members, just over half the sample reported exposure to at least one traumatic event during deployment (Baker et al., 2009). In a second study of over 40,000 current service members, a similar prevalence was found, with about half of deployed men and slightly fewer than half of deployed women reporting traumatic combat exposures (Wells et al., 2010). Recent findings suggest high rates of post-deployment mental health disorders, including symptoms of PTSD experienced by approximately 10% to 20% of returning servicemen and servicewomen (Hoge et al., 2004; Vasterling et al., 2006). Several studies conducted with Vietnam-Era veterans have demonstrated an association between severity of combat exposure and PTSD severity (Beckham et al., 1998).

With regards to subthreshold PTSD, research has found that subthreshold levels are associated with significant impairment in military service members (Mylle & Maes, 2004). Subthreshold levels of PTSD found in veterans have been shown to be associated with physical and mental health impairment, as well as limitations in occupational and interpersonal functioning (Grubaugh et al., 2005; Kulka et al., 1990; Weiss et al., 1992). These findings allude to associations between combat-related PTSD and adjustment

difficulties, however, do not provide clarification into levels of trauma severity (i.e. full-PTSD vs. Subthreshold PTSD vs. no-PTSD).

These research studies have demonstrated that individuals exposed to traumatic events may experience a variety of trauma-related symptomatology, to include full and subthreshold PTSD. Gender differences have been reported in regard to full-PTSD, with women reporting higher rates. Recent studies have also found trauma-related severity in military populations, possibly due to exposure to combat-related traumatic events. Additionally, research has indicated a strong association between trauma and other psychological symptoms, such as anxiety, depression and anger. While these psychological symptoms have been studied in full-PTSD population, they have rarely been examined in subthreshold population and should be examined in future research.

Trauma and Psychological Distress

Anger and PTSD

Anger is an emotional manifestation marked by hostile impulses and the perception of blocked goals, which include particular cognitive, physiological, motivational, and behavioral components (Ankaw et al., 2013). From the cognitive model of PTSD, anger is a basic emotion that often arises when one interprets a situation as hostile (Barrett, 2006; Wilkowski & Robinson, 2010). Anger is not the same as aggression, although the terms are often confused in psychology literature (Spielberger, 1999). Anger is an emotional response, while aggression is a behavioral response that can take the form of physical or verbal acts. Although the experience of emotional anger may result in the external expression of aggressive behaviors, that is not always the case.

Research indicates a significant relationship between PTSD and anger (Olatunji, Ciesielski, & Tolin, 2010; Orth & Wieland, 2006). Research has also identified anger as the single largest symptom predictor of overall PTSD symptom severity, accounting for as much as 40 % of the variance in PTSD scores (Novaco & Chemtob, 2002). Individuals with PTSD have difficulties suppressing and inhibiting anger, expressing anger appropriately and regulating feelings of anger (Olatunji et al., 2010). Research on anger and PTSD has addressed the issue of symptom overlap in diagnostic classifications. “Irritable behavior and angry outbursts” are included in Criterion E of PTSD in the DSM-5 (American Psychiatric Association, 2013) and researchers have referred to anger as a core feature of the disorder (McNew & Abell, 1995). The correlation between anger and PTSD is not an artifact of measurement overlap as PTSD symptom severity has been significantly correlated with multiple measures of anger after anger items were removed from the PTSD measures (Lasko et al., 1994; Novaco & Chemtob, 2002).

Anger Regulatory Deficits Model

The anger regulatory deficits model (Chemtob, Novaco, Hamada, Gross, & Smith, 1997; Novaco & Chemtob, 2002) draws upon earlier cognitive conceptualizations of trauma (Foa, Steketee and Rothbaum, 1989; Novaco, 1994), which describe anger as an emotional state that has both adaptive and maladaptive effects on behavior. This theory states that anger’s survival value in threatening situations becomes maladaptive when individuals later perceive threat in otherwise non-life threatening situations. Anger can be adaptive in situations which require self-preservation, such as being actually or threatened with physical harm. Individuals with PTSD demonstrate cognitive distortions overgeneralizing maladaptively that the world is a “dangerous place”,

therefore living their lives in constant fear. Consequently, individuals react with hostile appraisal and physiological arousal thus failing to regulate their anger intensity and expression (i.e. emotional dysregulation as a result of the demands of the environment) (Foa, Steeketee & Rothbaum, 1989). Anger can become intrusive and is part of a broader “dyscontrol syndrome” associated with heightened arousal, hostile appraisal, and antagonistic behavior by responding in contextually inappropriate conditions, whereby the person becomes dysregulated in reacting to the demand of the environment (Gonzalez et al., 2016).

Additionally, a cycle is created as individuals with PTSD are vulnerable to more perceived threat, leading to more anger, which in turn leads to greater readiness to perceive future threat (Beckham et al., 2002). For example, a non-traumatized individual who becomes aroused (i.e. angry) may begin a cognitive process that produces the thought that an angry outburst would only exacerbate a situation and so the cognition works to inhibit the action (Chemtob, Novaco, Hamada, Gros, & Smith, 1997). This inhibitory control function works to regulate the external expression of anger via aggressive behaviors for those who have been exposed to trauma, however, the ability to regulate emotion is negatively affected by the traumatic experience, leading to a rapid escalation of threat perception, such that inhibitions are overridden, and the perception of threat transforms to anger rapidly and results in “near automatic action” (Chemtob et al., 1997). Anger may lead to greater interpersonal conflict as a person’s cognitive process more rapidly perceives threat and anger and leads to heightened arousal (Novaco & Chemtob, 2002). Trauma victims with PTSD mainly have difficulties suppressing and

inhibiting anger and expressing anger appropriately (Olatunji et al., 2010). Activation of threat schemas strongly potentiates anger.

Fear Avoidance Theory

An alternative theory of the PTSD-anger relationship is the fear avoidance theory (Foa, Riggs, Massie, & Yarczower, 1995). This theory builds upon Horowitz's stress response theory by stating that anger represents an avoidant coping mechanism to deal with trauma-related emotion. This model suggests that by expressing anger, one is able to handle the traumatic experience without processing more vulnerable emotions, such as fear. The consistent relationship between anger and PTSD may exist because anger functions to facilitate emotional disengagement from less desirable emotions, such as fear (Foa, Skeketee, & Rothbaum, 1989; Jaycox & Foa, 1996).

Gender Differences in Anger and Trauma

Gender differences have been found when investigating aspects of anger, with men more likely to score higher on measures of anger expression (i.e. aggressive behaviors), while women scored higher on measures of internalized anger (i.e. emotional anger) in non-trauma exposed sample (Iqbal & Ahmad, 1993). Men and women may be socialized to express emotions that are socially appropriate for their gender, where the expression of aggression and anger is viewed as acceptable for men but not for women (Brody, 2000). Additionally, the expression of happiness and negative emotions such as sadness and depression are more acceptable for women than for men (Cancian & Gordon, 1988, Hochschild, 1983). The suppression of anger is believed to result in negative consequences for women, such as depression, guilt, anxiety, passive aggressiveness,

dependency, resentment, lack of self-definition, and low self-esteem (Greenspan, 1983; Kaplan, 1986; Kaplan, Brooks, McComb, Shapiro, & Sodano, 1983).

In regard to gender differences in anger expression in traumatized population, studies have found males with PTSD report higher levels of state anger, irritability, verbal hostility, indirect hostility than women with PTSD (Galovski, Mott, Young-Xu, and Resick, 2011; Castillo, Baca, Conforti and Qualls, 2002). Additionally, compared to female participants with PTSD, male participants with PTSD were more likely to report “externalizing” disorders (e.g. conduct disorders, substance use disorders, etc.) (Keller et al. 2005). Some research suggests the lower reported rates of PTSD in males may partially be due to their socialized expression of anger being directed outward (i.e. aggressive behaviors), as opposed to women who are culturally socialized to internalize their feelings of anger (Kline et al., 2013).

Aggressive Behaviors and Trauma

Aggression is the behavioral expression of anger that can take the form of physical or verbal acts. Physical expression of aggression can be directed towards the self, others or objects. Verbal acts range from shouting angrily and threatening physical violence to physical assaults (Ankaw et al., 2013; Wilkowski & Robinson, 2010). The association between PTSD and aggressive behaviors has been empirically supported (Kotler et al, 2001; Olatunji et al., 2010). Studies on this association have demonstrated strong associations between specific PTSD symptom clusters and measures of aggression (Byrne & Riggs, 1996; McFall, Fontana, Raskind, & Rosenheck, 1999). For example, results indicate that aggressive behavior was directly related to PTSD re-experiencing and physiological arousal symptoms (MacManus et al., 2013). PTSD symptoms were

directly associated with higher levels of aggression when accounting for the other variables of interest in the structural model (Taft et al., 2007).

Aggressive behaviors can serve as adaptive coping mechanism in reaction to perceived threat (Novaco & Chemtob, 2002). Current theories on PTSD and aggressive behaviors state that anger-activated behaviors are intensified by trauma due to heightened threat perception and heightened arousal (Novaco & Chemtob, 2002). Faulty perceptions of stressors may lead to the activation of anger in response to these threats, to include escalation of aggressive behaviors. Whether aggression is expressed depends upon provocation and inhibitory forces. Anger is related to both PTSD (Olatunji et al., 2010) and impulsivity (Kotler et al., 2001). Inhibitory controls can be overridden when heightened arousal is conjoined with perceived threats to survival, as found in those exposed to traumatic events.

Gender Differences in Aggression and Trauma

While associations between PTSD symptoms and aggressive behaviors have been established in studies of males with PTSD (Chemtob et al., 1994; Taft et al., 1999), research on the association between traumatized women and aggressive behaviors is conflicted and limited. A literature review by Beckham, Calhoun, Glenn and Barefoot (2002) reported few studies had examined the relationship between PTSD and aggressive behaviors and hostility in any female population. One study found males with PTSD report higher levels of verbal hostility and indirect hostility than women with PTSD (Galovski, Mott, Young-Xu, and Resick, 2011). Conversely, a study on women exposed to traumatic events found similar associations between PTSD and rates of emotional anger, aggressive behaviors and hostility as those which had been previously reported in

male populations (Butterfield, 2000). Another study found no meaningful gender differences for interpersonal aggression on outcomes in traumatized individuals, once lifetime exposure to aggressive events was taken into account (Pimlott-Kubiak et al., 2003). Due to these conflicted findings, future research is needed to understand possible underlying influences to account for the differences in aggressive behaviors in men and women with varying levels of PTSD symptomatology.

Anger and Aggression Relationship

Most studies on anger and aggression view it as a singular construct based on high levels of association and influence. Anger is an emotional state (internal), whereas aggression is a behavior (external). Feeling of anger may often lead to aggressive behavior, but not always. Individuals exposed to a trauma often have difficulties suppressing anger, expressing feelings of anger appropriately and regulating feelings of anger (Olatunji et al., 2010; Orth & Wieland, 2006; Teten et al., 2010), showing these types of anger expression are intercorrelated. For example, individuals who experience high levels of anger may express their anger outwardly (i.e. swearing, yelling, slamming doors, hitting another person, reckless driving, etc.) in some situations and may suppress their anger in other situations (i.e. around their children, their spouse or at work). Individuals with high levels of anger control tend to expend a great deal of energy monitoring and preventing the outward expression of anger (Spielberger, 1999).

Most studies on emotional anger and aggressive behaviors view them as a singular construct, however, it should be further broken down into its separate component. Recent evidence indicates that a focus on PTSD as a singular construct may obscure differential relationships of emotional anger and aggressive behaviors among its

separate symptom clusters. In particular, the hyperarousal cluster may have a unique predictive role and has been found to be a strong prospective predictor of other components of the posttraumatic response (Schell, Marshall, & Jaycox, 2004). The hyperarousal cluster is characterized by anger difficulties and other affective, physiological, and cognitive symptoms related to increased arousal (sleep and concentration problems, hypervigilance, exaggerated startle response) (American Psychiatric Association, 1994). High levels of anger combined with PTSD increase violence likelihood (via moderation) (MacManus et al, 2013). Excessive hypervigilance and threat sensitivity in the context of PTSD could lead to a propensity to engage in aggressive acts outside of elevated levels of anger (Price et al., 2006). Individuals with PTSD may have difficulties with emotion regulation, as evidenced by impulsive tendencies when experiencing emotional distress (Weiss, Tull, Anestis, & Gratz, 2013).

Trauma, Emotional Anger, Aggressive Behaviors in Veterans

Emotional anger and aggressive behaviors are strongly associated with combat-related PTSD (Orth & Wieland, 2006). Research has consistently found that levels of anger are greater among veterans with PTSD compared to veterans without PTSD (Beckham et al., 1997; Castillo et al., 2001). Elbogen et al. (2010) found that serving in a war-zone, deployment duration, and combat exposure were each associated with difficulty managing anger, aggressive impulses, and problems controlling violence. Other studies have found that veterans with PTSD are more likely to commit aggressive acts than veterans without PTSD or the general public (Beckham et al., 1997; Kulka et al., 1990). Additionally, a study comparing anger and aggression in veterans with and without PTSD diagnoses have found that the veterans with PTSD experienced and

expressed anger outwardly more, and controlled anger less, than veterans without PTSD (Lasko, Gurvits, Kuhne, Orr, & Pittman, 1994). The above study is one of the first in PTSD literature which examined anger and aggression as separate but related constructs in combat veterans, which demonstrate these variables should not simply be lumped together (Renshaw & Kiddie, 2012).

It has been suggested that combat exposure is associated with aggression partly due to the reinforcement and modeling of violence in the military (Gimbel & Booth, 1994). Additionally, some researchers have found that combat exposure and PTSD symptoms have independent effects on aggressive behavior (Beckham et al., 1997). Consequently, military service members are less likely to apply adaptive coping strategies compared to civilians (Sharkansky et al., 2000). This may leave veterans vulnerable to greater levels of anger and aggression (Renshaw & Kiddie, 2012). Military service members are trained in garrison to exhibit aggressive behaviors (i.e. hand-to-hand combat, marksmanship, etc.) for combat-related roles overseas, which includes practices of discipline for these aggressive acts. Activation of anger may usefully serve to engage aggression in combat and to overcome fear, but, in noncombat environments, anger is also maladaptive (Novaco & Chemtob, 2002). This finding is also inconsistent with conceptualizations of aggression that emphasize its reinforcement, acceptance, and modeling in the military or its adaptive nature during combat situations (Taft et al., 2005).

Depression and Trauma

In addition to associations with emotional anger and aggressive behaviors, research has also shown a strong association between PTSD and depressive symptoms

(Foa and Riggs, 1994). PTSD is often comorbid with depression and several PTSD symptoms (e.g., diminished interest or participation in significant activities, difficulty concentrating) are similar to symptoms of depression (DSM-IV, American Psychiatric Association, 1994). Research has shown that 74-80% of individuals with PTSD have a comorbid diagnosis of major depressive disorder (MDD) (Ginzburg, Ein-Dor, & Soloman, 2009; Thompson et al, 2011; Kulka et al., 1988).

In terms of gender and the association between trauma and depression, 50% of women and men with PTSD present with a secondary major depressive disorder (MDD) (Kessler et al, 1995). One research study indicated men and women with PTSD report similar levels of depressive symptomatology (Nolen-Hocksema & Girgus, 1994; Shalev et al., 1998). Gender role socialization and self-esteem issues have also been implicated in the higher incidence of depression among women in non-traumatized population (Kaplan, 1986). These two studies suggest that the buffer of non-traumatized men to report lower rates of depression is removed in the context of trauma (MacManus et al, 2013). Further research is needed to further understand possible gender differences in the relationship between trauma severity and depressive symptoms.

Trauma, Anger, Aggression and Depression

Empirical studies show associations between PTSD, anger and depression (Gonzalez et al., 2005). Anger is not among symptoms of major depressive disorder; however, it commonly accompanies these symptoms (Novaco, 2010). In a non-PTSD sample, depressed individuals report higher anger than those that are not depressed (e.g., Koh, Kim, & Park, 2002), and that association also occurs in military samples (Hull et al., 2003). Moderate to high correlations have been found between anger and depression,

such that individuals with high anger scores are more likely to experience depressive symptoms (Kellner, Hernandez, & Pathak, 1992). Additionally, smaller positive correlations have been found between aggression and depressive symptoms in a single PTSD sample (Spielberger, 1999). Comorbid PTSD and MDD was associated with higher anger scores than when screening criteria were met for PTSD only, for MDD only, or for neither condition (Gonzalez et al., 2015). Conceptually, elevated levels of negative affect should result in more activation of the associative networks and higher levels of transient anger, while longer periods of lower-level negative affect should result in prolonged anger activation of lesser intensity. Current diagnosis of major depressive disorder consists of a transitory, discrete period of heightened negative affect and partially mediates the relationship between PTSD and state anger (Raab et al., 2013).

The previously cited literature showed that in addition to trauma-severity, trauma exposed individuals often report other psychological distress. This may include symptoms of anger, aggression and depression. Most research on associated psychological distress is conducted on full-PTSD population, leaving a gap in the literature for understanding associated psychological distress in subthreshold PTSD population. Additionally, gender differences may exist in the severity of associated psychological distress. The connection between traumatic stress response severity (full-PTSD, subthreshold PTSD and no PTSD) and associated psychological distress in trauma exposed individuals needs to be further explored for possible underlying psychological mechanisms, which may account for such variations.

Trauma and Emotion Regulation

Emotion Dysregulation and PTSD

Theoretical and empirical literature highlights the role of emotion dysregulation in PTSD (Cloitre et al., 2002; Ehring & Quack, 2010; McDermott, Tull, Gratz, Daughters, & Lejuez, 2009; Tull, Barrett, McMillan, & Roemer, 2007). *Emotion dysregulation* is a multifaceted construct involving (a) a lack of awareness, understanding, and acceptance of emotions; (b) an inability to control behaviors when experiencing emotional distress; (c) a lack of access to adaptive strategies for mobilizing the intensity of emotional experiences; and (d) an attempted avoidance of emotional distress (Gratz & Roemer, 20014). Previous studies using non-clinical and community samples found associations between PTSD symptom severity and overall emotional dysregulation (Weiss, Tull, Anestis & Gratz, 2013). Specifically, PTSD has been found to be positively associated with overall emotion dysregulation and the specific dimensions of lack of emotional acceptance, difficulties engaging in goal-directed behaviors and controlling impulsive behaviors when upset, limited access to emotion regulation strategies, and lack of emotional clarity (Ehring & Quack, 2010, Tull et al., 2007). Furthermore, research provides evidence of heightened emotion dysregulation among individuals with PTSD.

In addition to the relationship with other negative affective states, emotion and information processing theories of PTSD (e.g., Foa & Kozak, 1986; Horowitz, 1986) describe various emotional processes difficulties associated with trauma memory encoding, storage, and retrieval. Emotional regulation deficits are one type of emotional process problems implicated in PTSD. Emotion regulation consists of two components. The first component is one's ability to tolerate strong emotions, both positive and

negative, without feeling overwhelmed. The second component is one's ability to modulate the experience of various emotional states (Herman, 1992). In other words, emotion regulation is the ability to assert some degree of control over one's emotions, such that one can experience a sense of stability and can easily transition between emotional states. Consistent with the notion that PTSD involves a deficit in the ability to manage strong emotions, various studies have shown a relationship between PTSD and emotion regulation (Pelcovitz et al., 1997; van der Kolk, Roth, & Pelcovitz, 1993). The PTSD field trials for the Diagnostic and Statistical Manual, Fourth Edition (DSM-IV) revealed that over 70% of respondents, regardless of trauma type, endorsed symptoms of emotion dysregulation (van der Kolk et al., 1993).

Statement of the Problem

Military service members are at a high risk of exposure to traumatic events while deployed, with some endorsing full-PTSD, subthreshold PTSD or no symptoms at all (Jakupcak, et al., 2007). Consequently, individuals with PTSD often experience associated psychological distress, such as emotional anger, aggressive behaviors and depression symptoms than non-traumatized individuals (Novaco and Chemtob, 2002; Kotler et al, 2001; Orth & Wieland, 2006; Ginzburg, Ein-Dor, & Soloman, 2009). Some studies find women are at greater risk for PTSD, while other studies find no gender differences. There are virtually no studies examining gender differences in subthreshold PTSD. The higher prevalence of subthreshold PTSD in the general population may be disproportionately female, but no studies or few studies have examined this. Furthermore, it is not clear whether the psychological symptoms associated with PTSD are associated

with subthreshold PTSD, and whether gender modifies this association. The connection between PTSD and associated psychological distress may be underlined by emotional dysregulation caused by trauma (Crevier et al., 2014). Therefore, the present study will address gaps in the research by examining the differences of emotional anger, aggressive behaviors and depressive symptoms in trauma-exposed men and women with full-PTSD, subthreshold PTSD and no trauma-related symptoms. Also, the present study will examine the associations between trauma and associated psychological distress (i.e. emotional anger, aggressive behaviors and depressive symptoms) as a result of emotion dysregulation, which may serve as a moderator of these associations.

Study Aims and Research Questions

Rationale for Research Question 1

PTSD is a stress reaction to traumatic events and should be viewed as spectrum based severity, rather than discrete variables. Research on PTSD has indicated associated psychological distress of emotional anger, aggressive behaviors and depressive symptoms in combat veterans with full-PTSD (Ginzburg, Ein-Dor, & Soloman, 2009; Thompson et al, 2011). Unfortunately, these associations have rarely been examined in a subthreshold PTSD population (Jakupcak et al., 2007). Additionally, PTSD research often combines symptoms of emotional anger and aggressive behaviors into a single construct, despite these symptoms falling in different diagnostic criterion and possible evidence for differentiated pathways. This study will examine levels of associated psychological distress (i.e., emotional anger, aggressive behaviors, and depression) in trauma exposed combat veterans with full-PTSD, subthreshold PTSD diagnosis and no-PTSD symptoms.

Research Question 1

Are there mean differences in psychological distress, anger, aggression, and depression across the three traumatic stress reaction groups (full-PTSD, subthreshold PTSD, and no-PTSD symptoms)?

Rationale for Research Question 2

Research has highlighted gender differences in rates of full-PTSD (Ginzburg, Ein-Dor, & Solomon, 2009). Unfortunately, few research studies have been conducted to examine gender differences in subthreshold PTSD and associated psychological distress (Jakupcak et al., 2007). Additionally, research on PTSD often examines anger and aggression as a similar construct, despite underlying pathways that may manifest differently based on trauma severity. Research is needed to examine possible gender differences in the expression of symptoms often associated with trauma, to include anger, aggression and depression.

Research Question 2

Does gender modify the relationship between traumatic stress response groups (i.e. full-PTSD, subthreshold PTSD and no-PTSD symptoms) and emotional responses of anger, aggressive behaviors, and depression in trauma-exposed military service members?

Rationale for Research Question 3

The ability to regulate emotion is affected by the traumatic experience, leading to a rapid escalation of threat perception, such that inhibitions are overridden, and the perception of threat transforms to anger rapidly and results in aggressive acts (Ehlers & Clark, 2000). Cognitive theory of PTSD argues that PTSD symptoms are the result of faulty assumptions that the world is unsafe, and the individual is incompetent in reaction

to traumatic experiences (Ehlers & Clark, 2000). Individuals with trauma associate previously benign stimuli with danger, which is a representation of arousal and behavioral reactions. For example, a non-traumatized individual who becomes aroused (i.e. angry) may begin a cognitive process that produces the thought that aggression would only exacerbate a situation and so the cognition works to inhibit the action. This inhibitory function in non-traumatized individuals works to regulate the external expression of anger via aggressive behaviors. Additionally, emotional dysregulation caused by trauma may influence the experience of depressive symptoms associated with pathological grieving and loss (Cole et al., 2004).

Research Question 3

Does emotion dysregulation modify the relationship between traumatic stress reactions (full-PTSD, subthreshold PTSD and no-PTSD symptoms) and dependent variables of psychological distress (specifically aggression and depression) in male and female trauma-exposed military service members?

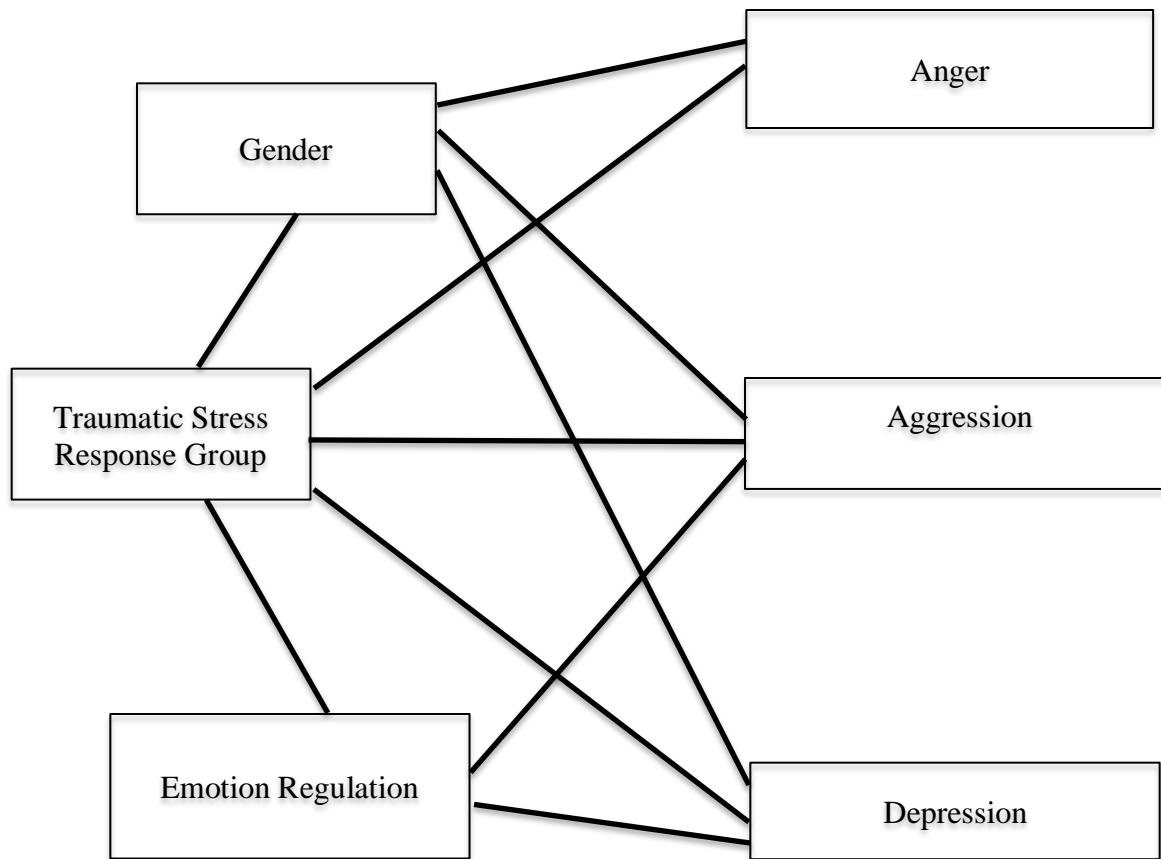


Figure 1. Diagram of conceptualized model of traumatic stress response grouping, gender, and emotion regulation on associated symptoms of anger, aggression, and depression

Chapter III: Method

Participants and Setting

A total of 131 male and female U.S. military veterans met all eligibility criteria. To be eligible to participate, veterans had to be between 18-75 years old and have served at least one year in the U.S. military. U.S. military eligibility requirements include serving in the Army, Navy, Air Force, Marines, Coast Guard, Army National Guard and/or Army Reserves. One hundred male and female veterans met criteria for traumatic stress response group. To be eligible for the traumatic stress response group, veterans had to report at least one (1) exposure to traumatic event. Exclusion criteria consisted of: (a) Military service shorter than 12 months, and (b) Over 75 years old. The criteria of military service was due to the time required for basic training, specialized training, and deployment training would, on average, take 10-12 months. This would not allow sufficient time to be eligible to deploy overseas. The age exclusion as set at 75 years old due to cognitive decline associated with natural aging, as many of the questions require memory recall from up to 50 years prior. Additionally, several other research studies on PTSD use 75 years of age as a cut off (Hoge, Auchterlonie, & Milliken, 2006).

Participants were recruited through advertisements (brochures and flyers) as well as through the American Psychological Association Division 19 Military Psychology member and graduate student monthly electronic monthly newsletter. Recruitment took place through an 11-month period between 2017-2018. Interested individuals were directed to an online Qualtrics questionnaire to be screened for age, military service, and length of service. Eligible participants electronically signed an informed consent after screening questions and before the online questionnaire.

Table 1 depicts demographic sample characteristics. The majority of the sample was female (64%), Caucasian (81%), partnered or married (61%), and have children (55.5%). For highest level of education, the majority of the sample had a Master's Degree (40.6%). For military branch of service, the majority of the sample served in the U.S. Army (90.6%).

Table 1
Demographic Characteristics of the Sample (N=100)

Factor	N (%)
Gender	
Male	38 (38%)
Female	62 (62%)
Race/ethnicity	
African American/Black	6 (6%)
Caucasian/White	82 (82%)
Asian	2 (2%)
Multiracial	9 (9%)
Missing	1 (1%)
Latino/Hispanic	
Yes	7 (7%)
No	93 (93%)
Marital Status	
Single	18 (18%)
Boyfriend/Girlfriend	2 (2%)
Partnered/Married	62 (62%)
Separated/Divorced	15 (15%)
(results missing)	3 (3%)
Children	
Yes	59 (59%)
No	40 (40%)
Missing	1 (1%)
Number of children	
0	63 (63%)
1	10 (10%)
2	17 (17%)
3	5 (5%)
4+	5 (5%)
Religious Practice	
Agnostic	10 (10%)
Atheist	6 (6%)
Baptist	10 (10%)
Buddhist	1 (1%)
Catholic	30 (30%)
Jewish	1 (1%)
Other	14 (14%)

Protestant	24 (24%)
Education	
Completed high school	1 (1%)
Some College	10 (10%)
Completed college	24 (24%)
Some Graduate School	16 (16%)
Master's Degree	39 (39%)
Doctoral Degree	10 (10%)
Employment	
Full Time (35+ hours)	74 (75%)
Part Time	6 (6%)
Student	5 (5%)
Retired	10 (10%)
Unemployed	5 (5%)
Military Branches Served	
Airforce	4 (4%)
Airforce, Reserved	1 (1%)
Army	63 (63%)
Army, Airforce	1 (1%)
Army, Reserves, National Guard, Airforce	1 (1%)
Army, Reserves, National Guard, Marines	1 (1%)
Army, National Guard	10 (10%)
Army, Reserves	7 (7%)
Army, National Guard, Reserves	5 (5%)
National Guard	2 (2%)
Navy	5 (5%)
Marines	1 (1%)

Table 2 classifies the types of traumatic events, frequency, and age of first exposure. Participants who are included report at least one (1) reported lifetime exposure to a traumatic event that meet DSM-5 Criterion for PTSD and are included in the traumatic stress response group. Of those participants included; 89.1% reported at least one (1) combat deployment, with an average of 7 to 12 months deployed, 44.1% reported at least one experience of combat patrol or other dangerous duty, 30.5% reported at least one experience of being under enemy fire, 36.7% reported a percentage of their unit killed, wounded, or missing in action, 17.9% reported being surrounded by the enemy, 20.3% reported seeing someone hit by incoming or outgoing rounds, 27.3% reported an assault with a weapon happening to them, 28.9% reported at least one experience of sexual assault, 40.6% reported at least once experiences of other unwanted or uncomfortable sexual experience.

Table 2
Deployment and Traumatic Experiences (N=100)

Factor	<i>n</i> (%)
Months deployed overseas	
>1 to 12	46 (46%)
13 to 24	40 (40%)
25 to 36	7 (7%)
37 to 48	4 (4%)
49 +	3 (3%)
Percent of soldiers in unit KIA, wounded, or missing	
None	63 (63%)
1-25%	35 (35%)
26-50%	1 (1%)
51-75%	1 (1%)
76%+	
Fired rounds at enemy fire	
Never	85 (5%)
1-2 times	4 (4%)
3-13 times	1 (1%)
13-50 times	8 (8%)
51+ times	2 (2%)
Surrounded by the enemy	
Never	87 (87%)
1-2 times	8 (8%)
3-12 times	1 (1%)
13-25 times	2 (2%)
26+ times	2 (2%)
In danger of being injured or killed	
Never	47 (47%)
1-2 times	19 (19%)
3-12 times	9 (9%)
13-50 times	20 (20%)

Note. KIA = Killed in Action

Procedures

Design

This study is a descriptive, cross-sectional design study, utilizing self-report measures to assess level of trauma, anger, aggression, depression, and emotion regulation. Traumatic stress response and gender serve as independent variables, with anger, aggression, depression and emotion regulation to serve as dependent variables. Following screening, participants completed an online questionnaire in which information regarding demographics, combat-related experiences, stressful life events, PTSD diagnosis, anger, aggression, depression, and emotional dysregulation were obtained. 134 participants met screening criteria and fully completed the online questionnaire. Responses for three of the participants were excluded due to being over 75 years old. Of 131 participants, 100 reported at least one (1) lifetime exposure to traumatic event(s). The 100 trauma-exposed participants were grouped into one-of-three traumatic stress response levels: no-PTSD, subthreshold PTSD, and full-PTSD. Subthreshold PTSD group classification was established using common scores in the literature based on the DSM-5 (APA, 2013); Report at least one lifetime traumatic event (Criterion A of DSM-5 PTSD) and meet either Criterion B “re-experiencing symptoms”, Criterion C “avoidance or numbing symptoms”, Criterion D “hyperarousal”, and/or Criterion E “alterations in cognition or affect” but do not meet all DSM-5 diagnostic requirements for full-PTSD (McLaughlin et al., 2015; Mota et al., 2016). No-PTSD group criterion includes at least one lifetime traumatic event (Criterion A) and no other reported DSM-5 criterion of PTSD (e.g. criterion B, C, D, or E). “Full-PTSD” group meets all diagnostic criteria for PTSD per the DSM-5. Of those participants who reported at least one (1) lifetime

exposure to a traumatic event(s), using cutoffs common in the literature (McLaughlin et al., 2015), 25 (25%) participants reported no-PTSD, 34 (34%) reported subthreshold PTSD, and 41 (41%) reported full-PTSD.¹ For the traumatic stress response samples, 25 (25%) participants reported no-PTSD, 34 (34%) reported subthreshold PTSD, and 41 (41%) reported full-PTSD.

Measures

Sociodemographic

Information regarding gender, age, education, employment status, relationship status, ethnic and racial background, socioeconomic status, and current/prior substance use was obtained using an abbreviated substance use inventory measure for alcohol and cannabis use only. These characteristics were examined as potential covariates.

Trauma History Measure

Life Events Checklist for DSM-5 (LEC-5)

The LEC-5 (Weathers et al., 2013) is a 17-item self-report measure that assesses exposure to potentially traumatic events across the life span. Participants were asked to endorse exposure to 16 known events with an extra item included to assess other extraordinary stressful events. For each event, participants indicated if they experienced the event personally, witnessed it, learned about it, experienced it as part of their job, were unsure if they experienced the event, or felt the event did not apply.

¹ Note: In addition to diagnostic cutoffs for subthreshold PTSD cutoffs, similar results were found using PCL-5(e.g. PTSD) severity cutoff scores for subthreshold PTSD using common cutoff scores in the literature.

Combat Exposure Scale (CES)

The Combat Exposure Scale (CES) is a 7-item self-report measure that assesses wartime stressors experienced by combatants. Items are rated on a 5-point frequency (1 = "no" or "never" to 5 = "26+ times" or "51+ times"), 5-point duration (1 = "never" to 5 = "7+ months"), or 45-point degree of loss (1 = "none" to 45 = "76% or more") scale. Respondents are asked to reply based on their exposure to various combat situations, such as firing rounds at the enemy and being on dangerous duty (Keane, Fairbank, Caddell, Zimering, Taylor, and Morea, 1989).

Trauma Symptoms Measure

PTSD Checklist for DSM-5 (PCL-5)

This self-report maps onto DSM-5's PTSD criteria based on the psychometrically sound PCL. The total score ranges from 0 to 80. Normed on trauma-exposed college students, the PCL-5 has good internal consistency as reflected in an alpha coefficient of .94 (Blevins, Weathers, Witte, & Davis, 2012), high item-total scale correlations, good convergent validity with other trauma measures, and good discriminant validity (Blevins et al., 2012). For this study, subscale scores were computed for each of the four DSM-5 subscales: intrusions (five items), avoidance (two items), negative alterations in mood/cognitions (seven items), and arousal (six items) (Blevins, Weathers, Davis, Witte, & Domino, 2015).

Anger and Aggression Measure

State Trait Anger Expression Inventory (STAXI-2)

The STAXI-2 contains 57 items in 3 sections (state anger, trait anger, and anger expression/control). Trait anger is measured using 10 items to assess how frequently angry feelings are experienced over time. The anger expression/control scales each have eight items; anger expression-out (AX-O) assesses how often anger is expressed in physical or verbal aggression, anger expression-in (AX-I) assesses how often angry feelings are experienced but suppressed, anger control-out (AC-O) measures how frequently a person attempts to control the outward expression of angry feelings, and anger control-in (AC-I) assesses how often a person attempts to control angry feelings by actively calming him/herself. Responses are made on a 1 (almost never) to 4 (almost always) Likert-type scale and are converted to percentiles using gender and age-specific norms. Respondents rate each item from (1) “not at all” to (4) “very much so” to indicate the degree to which that symptom has been present for them. Simple summation where all items are weighted equally is used to compute scores. Possible scores on the State and Trait anger scales range from 10 to 40; possible scores on each of the expression subscales range from 8 to 32, and the possible total anger expression scores range from 0 to 72 (Spielberger, 1999).

Depression Measure

Beck Depression Inventory (BDI-II)

Depressive symptomatology was measured by the Beck Depression Inventory II (BDI-II, Beck, Steer, and Brown, 1996), a widely used 21-item self-report measure of the severity of depressive symptoms. Respondents are asked to rate on a 4-point scale (0-3) how often they have experienced each item in the past 2 weeks. Scores greater than or equal to 20 suggest probable depression. The BDI-II has good internal consistency with a

coefficient of 0.92 for outpatients and 0.93 for college students; test-retest, reliability over 1 week was 0.93. The BDI-II correlates with other measures of depressive symptoms, and construct validity of the instrument has been well established (Beck, Steer, and Brown, 1996).

Emotion Regulation Measure

Difficulties in Emotion Regulation Scale (DERS)

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item self-report measure that assesses individuals' typical levels of emotion dysregulation across six domains: non-acceptance of negative emotions, inability to engage in goal-directed behaviors when distressed, difficulties controlling impulsive behaviors when distressed, limited access to emotion regulation strategies perceived as effective, lack of emotional awareness, and lack of emotional clarity. Items are presented in a Likert scale, ranging from "Almost never" (0-10%) to "Almost always" (91-100%). Eleven items are reversed scored and all scores are summed, with a possible score of 0 to 135. Higher total scores suggest greater problems with emotion regulation. The DERS has been found to demonstrate good test-retest reliability ($\rho I = .88, p < .01$) and adequate construct and predictive validity (Gratz & Roemer, 2004; Gratz & Tull, 2010). Further, the DERS has been found to predict performance on behavioral measures of emotion regulation and the willingness to experience emotional distress (Gratz & Tull, 2010).

Data Analysis

Descriptive statistics and frequency are used to analyze demographic information. Relationships among dependent variables and demographic and background variables are analyzed using correlations, t-tests and MANCOVAS to assess for

covariates. A MANCOVA was conducted to test for the relationship between traumatic stress response categories and gender on associated psychopathology, such as emotional anger, aggressive behaviors and depression. One-way, between-subjects ANCOVAs were conducted to examine the individual relationships between traumatic stress response, gender, anger, aggression, depression, and emotion regulation.

Chapter IV: RESULTS

Traumatic Stress Response Grouping

The results from the PCL-5, CES, and LEC-5 were used to determine diagnostic classifications of traumatic stress response group. Results from CES and LEC-5 were used to determine lifetime exposure to a traumatic event(s), frequency, and age of first exposure. PCL-5 is a symptom inventory for DSM-5 PTSD and is used to determine traumatic stress response level. For this study, 100 participants met all eligibility requirements. For traumatic stress response grouping, 25 (25%) participants were classified using the criteria described in the methods section, no-PTSD, 34 (34%) reported subthreshold PTSD, and 41 (41%) reported full-PTSD (see table 3).

Figure 2 depicts the flow of participants from screening through traumatic stress response grouping.

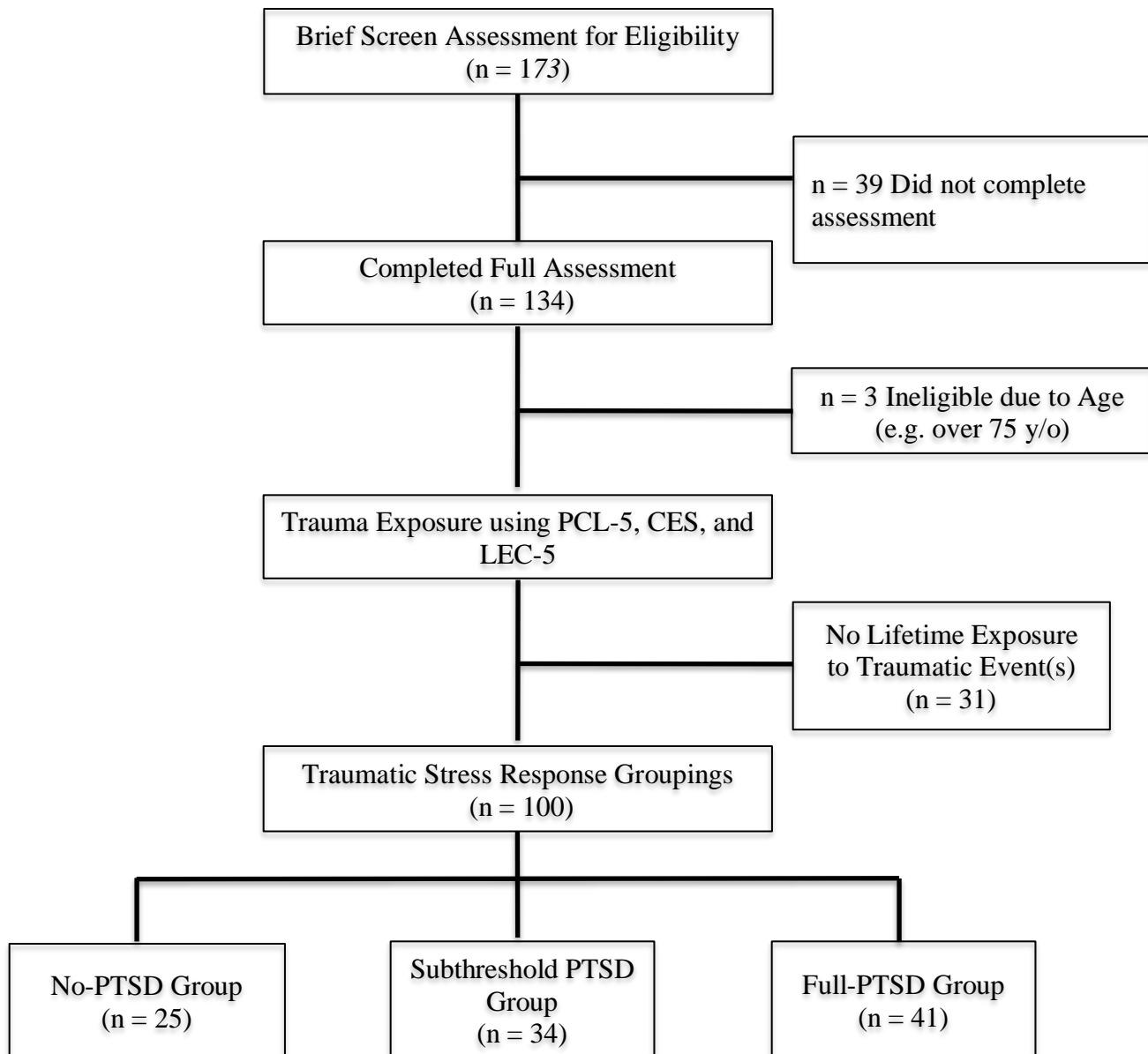


Figure 1. Diagram of participant flow through traumatic stress response grouping
 PTSD = Post-Traumatic Stress Disorder, PCL-5 = Posttraumatic Stress Disorder Check List for DSM-5 (Blevins, Weathers, Davis, Witte, & Domino, 2015), CES = Combat Event Checklist (Keane, Fairbank, Caddell, Zimering, Taylor, and Morea, 1989), LEC-5 = Life Events Checklist-5 (Weathers, Blake, Kaloupek, Marx, and Keane, 2013).

Traumatic Stress Response and Dependent Variables of Distress

A one-way MANCOVA was conducted to analyze Research Question 1: the effect of level of PTSD severity on anger, aggression and depression, while controlling for age and education as covariates due to significance. An overall multivariate effect was found showing that differences in the levels of anger, aggression, and/or depression could be accounted for by traumatic stress response group, $F(2, 99) = 6.012, p < .000$. Education was not a significant effect, but a significant effect was found for age, $F(2, 99) = 2.627, p = .015$, with 13.7 of the variability was explained by age. The effect size, as measured by eta squared, was medium, with 23.5 percent of the variability in anger, aggression, and depression being explained by traumatic stress response group. MANCOVA results are summarized in Table 3.

Table 3

Multivariate Effects for Traumatic Stress Response and Dependent Variables of Distress, controlling for Age and Education (N = 100)

Effect	Pillai's Trace	F	df	Error df	Sig.	Partial Eta Squared
Intercept	0.960	401.8	7	116.0	.000	.960
Age	0.137	2.627	7	116.0	.015	.137
Education	0.056	0.985	7	354.0	.446	.056
TSRG	0.706	6.012	21	333.6	.000	.235

Note. TSRG = Traumatic Stress Response Group (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015)

Given the significant results for the overall multivariate main effects of traumatic stress response group in the MANCOVA, follow-up ANCOVAs were conducted to examine main effects of Trauma Stress Response Group on the individual dependent variables. ANCOVA results for traumatic stress response group and all dependent variables can be found on Table 4. Means and Standard Errors for traumatic stress response and dependent variables can be found on Table 5.

Table 4

ANCOVA Table: Dependent Variables of Distress Predicted by Trauma Stress Group, Controlling for Age and Education (N =100)

Variable	df	F	p	Partial Eta Squared
State Anger	3	9.875	.000	.195
Trait Anger	3	15.106	.000	.271
Anger-Index	3	27.584	.000	.404
Anger Expression-Out	3	10.488	.000	.205
Anger Expression-In	3	31.861	.000	.439
Anger Control-Out	3	13.446	.000	.248
Anger Control-In	3	11.093	.000	.214
Depression	3	15.479	.000	.276

Note. TSRG = Traumatic Stress Response Group (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015), State Anger, Trait Anger, Anger Expression-Out, Anger Expression-In, Anger Control-Out, Anger Control-In (STAXI-2; Spielberger, 1999), Depression (BDI-2; Beck, 1996).

Table 5

*Means and Standard Errors of Dependent Variables by Traumatic Stress Response**Group (N = 100)*

Variable	No PTSD (n = 25)		Subthreshold PTSD (n = 34)		Full PTSD (n = 41)	
	M	(SE)	M	(SE)	M	(SE)
State Anger	19.78	(1.34) ^a	20.67	(1.20) ^b	26.67	(1.15) ^{a, b}
Trait Anger	14.86	(1.01) ^a	16.26	(0.86) ^b	20.69	(0.81) ^{a, b}
Anger-Index	22.06	(2.60) ^c	30.97	(2.21) ^c	39.37	(2.10) ^c
Anger Control-In	26.29	(1.05) ^{a, b}	22.90	(0.89) ^a	21.84	(0.85) ^b
Anger Control-Out	27.08	(0.97) ^a	24.61	(0.82)	22.06	(0.79) ^a
Anger Expression-In	14.99	(0.77) ^a	16.74	(0.66)	19.49	(0.63) ^a
Anger Expression-Out	12.41	(0.69) ^a	13.75	(0.63) ^b	15.79	(0.59) ^{a, b}
Depression	3.98	(1.46) ^c	6.76	(1.32) ^c	15.19	(1.26) ^c

^a Pair significantly different at the $p < .05$ level.^b Pair significantly different at the $p < .05$ level.^c Significantly different at the $p < .05$ level.

Note. TSRG = Traumatic Stress Response Group (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015), State Anger, Trait Anger, Anger Expression-Out, Anger Expression-In, Anger Control-Out, Anger Control-In (STAXI-2; Spielberger, 1999), Depression (BDI-2; Beck, 1996).

For the traumatic stress response and anger variable, significant differences were found for both state anger, $F(2, 99) = 9.875, p = .000$, partial $\eta^2 = .195$, and trait anger, $F(2, 99) = 15.106, p = .000$, partial $\eta^2 = .271$. The subthreshold PTSD group was not found to have significantly different levels of state anger and trait anger compared to the no-PTSD group. The subthreshold PTSD group was found to have significantly lower levels of state anger and trait anger compared to full-PTSD group. Full-PTSD group was found to have statistically higher levels of state and trait anger compared to no-PTSD group. Results partially support Research Question 1 that subthreshold PTSD group scored lower than full-PTSD group for state and trait anger, but not regarding differences between no-PTSD and subthreshold PTSD group.

For the aggression variable, significant differences were found for traumatic stress response grouping and aggression variable; anger-index, $F(2, 99) = 27.584, p = .000$, partial $\eta^2 = .404$. The subthreshold PTSD group was found to have significantly higher levels of aggression (e.g. anger index), compared to no-PTSD group. The subthreshold PTSD group was found to have significantly lower levels of aggression (e.g. anger index), compared to full-PTSD group. These findings support Research Question 1 that subthreshold PTSD group report levels higher than no-PTSD group and lower than full-PTSD group.

Mixed results were found for differences between traumatic stress response grouping and subcategories of aggression; anger expression-out, $F(2, 99) = 10.488, p = .000$, partial $\eta^2 = .205$, anger expression-in, $F(2, 99) = 31.861, p = .000$, partial $\eta^2 = .439$, anger control-out, $F(2, 99) = 13.446, p = .000$, partial $\eta^2 = .248$, and anger control-in, F

(2, 99) = 11.093, $p = .000$, partial $\eta^2 = .253$. For anger control-In variable, No-PTSD group was found to be different from subthreshold-PTSD and full-PTSD group, however, subthreshold PTSD group were not different from full-PTSD group on anger control-in. For anger control-out and anger expression-in variables, no-PTSD group was found to be different from full-PTSD group, however, subthreshold PTSD group were not found to be different from no-PTSD group or full-PTSD group. For anger expression-out variable, no-PTSD group was different from full-PTSD group, subthreshold PTSD group was found to be different from full-PTSD group, however, no-PTSD group and subthreshold PTSD group were not found to be different. Results partially support Research Question 1, with subthreshold PTSD group reporting lower levels of anger expression-out than full-PTSD group, and subthreshold PTSD group would report higher levels of anger-control-In than no-PTSD group. Results did not fully support Research Question 1, as subthreshold PTSD did not report different levels of anger control-out, anger expression-in, and anger expression-out compared to no-PTSD group. Additionally, subthreshold PTSD group did not differ from full-PTSD group on anger control-in, anger control-out, and anger expression-out.

For the depression, significant differences were found between traumatic stress response groups, $F(2,99) = 15.479$, $p = .000$, partial $\eta^2 = .276$. The subthreshold PTSD group was found to have significantly higher levels of depression than the no-PTSD group, and lower levels compared to the full-PTSD group. Results support Research Question 1 as subthreshold PTSD group significantly falls between the no-PTSD group and the full-PTSD group for depression scores.

Overall, Research Question 1 was partially supported for traumatic stress

response group and dependent variables of anger, aggression, and depression. Subthreshold PTSD group scored between the no-PTSD group and full-PTSD group on aggression and depression variables. Research Question 1 was supported with subthreshold PTSD reporting significantly lower levels of state anger, trait anger, and anger expression-out compared to full-PTSD group. Additionally, subthreshold PTSD group reported higher levels of anger-index (i.e. aggression variable), anger control-in, and depression compared to no-PTSD group. Research Question 1 was not fully supported, as subthreshold PTSD group did not differ from no-PTSD on state anger, trait anger, anger control-out, anger expression-in, anger expression-out. Additionally, subthreshold PTSD group did not differ from full-PTSD on levels of anger control-in and anger expression-in.

Traumatic Stress Response, Gender, and Associated Variables of Distress

For Research Questions 2, a two-way MANCOVA was conducted to analyze the effects of traumatic stress response, gender, and their interaction on the dependent variables anger, aggression, and depression, while controlling for age and education level. An overall multivariate main effect showed differences in the levels of these measures that could be accounted for by traumatic stress response group, $F [2, 99] = 4.929, p < 0.000$. Gender, however, was not a significant effect, $F [2, 99] = 1.72, p = .111$. The interaction of gender and traumatic stress response group also did not show a significant multivariate effect, $F (2, 99) = 0.669, p = .863$. This indicates that the relationship between traumatic stress group and these dependent measures did not differ by gender. Covariate effects were found for age, $F (2, 99) = 2.487, p = .021$, but not for

education, $F(2, 99) = 0.99, p = .442$. See Table 6 for MANCOVA results for Research Question 2.

Table 6

Multivariate Effects for Traumatic Stress Response, Gender, and Dependent Variables, controlling for Age and Education (N = 100)

Effect	Pillai's Trace	F	df	Error df	Sig.	Partial Eta Squared
Intercept	0.961	394.182	7.000	112	.000	.961
Age	0.135	2.487	7.000	112	.021	.135
Education	0.058	0.99	7.000	112	.442	.058
TSRG	0.696	4.929	21.0	342	.000	.232
Gender	0.097	1.72	7.0	112	.111	.097
TSRG*Gender	0.118	0.699	21.0	342	.863	.039

Note. TSRG = Traumatic Stress Response Group: PCL-5 (Blevins, Weathers, Davis, Witte, & Domino, 2015)

Follow-up ANCOVAs were conducted to determine whether the specific group differences hypothesized were found and will be discussed separately by dependent variable. See Table 7 for results of all ANCOVAs for effect of traumatic stress response group and gender on dependent variables, controlling for age and education. Means and standard errors for the interaction effect of gender and traumatic stress response groups on dependent variables can be found in Appendix 1 due to lack of statistically significant differences.

Table 7

State Anger Predicted by the Interaction of Trauma Stress Response Group and Gender, controlling for Age and Education (N = 100)

Variable	df	F	p value	Partial Eta Squared
Anger				
State Anger	3	0.352	.764	.01
Trait Anger	3	0.128	.943	.003
Aggression				
Anger-Index	3	0.106	.956	.003
Anger Expression-Out	3	0.559	.643	.014
Anger Expression-In	3	1.046	.375	.026
Anger Control-Out	3	0.254	.858	.006
Anger Control-In	3	0.426	.734	.011
Depression	3	0.581	.629	.015

Note. TSRG = Traumatic Stress Response Group (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015), State Anger, Trait Anger, Anger Expression-Out, Anger Expression-In, Anger Control-Out, Anger Control-In (STAXI-2; Spielberger, 1999), Depression (BDI-2; Beck, 1996).

Traumatic Stress Response, Gender, and Anger

For the first level of Research Question 2, a two-way ANCOVA was conducted to assess the effects of TSRG, gender, and their interaction on the dependent variable of anger, controlling for age and education. For state anger, no significant effect of gender or the interaction between traumatic stress response group and gender were found, $F(2, 99) = 0.352, p = .764$. For the subthreshold PTSD group, men were not significantly different than women on state anger variable. Similarly, for trait anger variable, there were no significant findings for the interaction between traumatic stress response group and gender, $F(2, 99) = 0.128, p = .943, \eta^2 = .003$. Research Hypothesis 2 was not supported for the interaction of gender and traumatic stress response group and variable of anger, as men and women did not differ on reported levels of anger for each individual traumatic stress response group.

Traumatic Stress Response, Gender, and Aggression

For the second level of Research Question 2, a two-way ANCOVA analysis was conducted to assess the effect of traumatic stress response and gender on the dependent variable of aggression, controlling for age and education. Aggression was assessed using the STAXI-2 main aggression measure (i.e. anger-index score) and associated subcategories of aggression (four levels: anger expression-in, anger expression-out, anger control-in, anger control-out).

For aggression variable, no significant results were found for the interaction between traumatic stress response group and gender, $F(2, 99) = .106, p = .956, \eta^2 = .003$. For subthreshold variable, men and women were not significantly different. Research

Question 2 was not supported for the interaction between traumatic stress response group and gender on variable of aggression, as men and women did not differ.

For Anger Expression-In, there was no significant effect for the interaction between traumatic stress response group and gender, $F(2, 99) = 1.046, p = .375, \eta^2 = .026$. For subthreshold variable, men and women did not differ significantly. Research Question 2 was not supported for the interaction of traumatic stress response group and gender.

Results for anger expression-out indicated no significant effect for the interaction between traumatic stress response group and gender, $F(2, 99) = .559, p = .643$. For subthreshold variable, men and women were not significantly different. Research Question 2 was not supported for traumatic stress response group and gender.

For anger control-in, a significant effect was found between men and women independent of trauma severity, $F(1, 99) = 4.442, p = .037, \eta^2 = .036$, but not for the interaction between gender and traumatic stress response group, $F(2, 99) = 0.426, p = .734, \eta^2 = .011$. For the subthreshold PTSD group, men and women were not significantly different for anger control-in. Research Question 2 was not supported. Results for anger control-in variable can be seen on Figure 2.

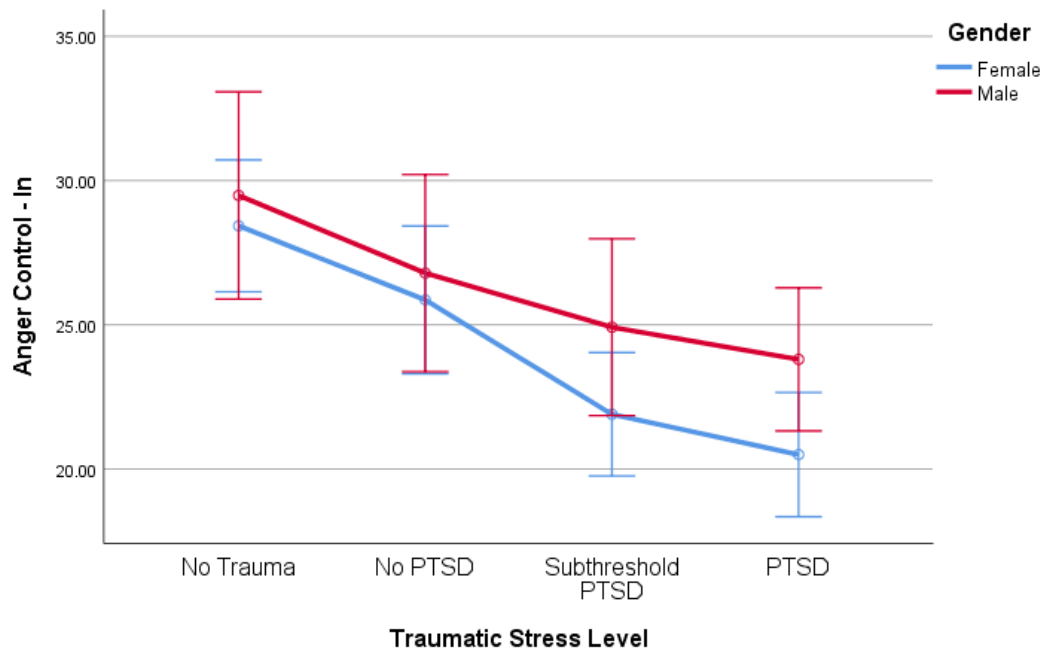


Figure 2. Results for Traumatic Stress Response group and Gender for Anger Control-In variable, controlling for Age and Education Level.

For anger control-out, no significant effect was found for the interaction between traumatic stress response group and gender, $F(2, 99) = 0.254, p = .858, \eta^2 = .0006$. For subthreshold PTSD group, men and women were not significantly different in reported anger control-out. Research Question 2 was not supported for the interaction between traumatic stress response group and gender, as men and women did not differ in reported levels anger control-in.

Traumatic Stress Response, Gender, and Depression

For the final level of Research Question 2, a one-way ANCOVA was conducted to evaluate the effects of traumatic stress response group and gender, and their interaction, controlling for age and education, on the dependent variable of depression. No significant interaction effect was found, $F(2, 99) = 0.581, p = .629, \eta^2 = .015$. For subthreshold PTSD group, men and women were not significantly different on reported depression symptoms. Research Question 2 was not supported for traumatic stress response group and gender, as men and women did not differ on depression.

Traumatic Stress Response and Emotion Dysregulation

A three-by-three MANCOVA was conducted to analyze whether emotion dysregulation moderated the relationship between traumatic stress response group and dependent variables of aggression and depression, controlling for age and education, for Research Question 3. Emotion dysregulation was broken into three groups based on severity based on DERS scores (e.g. low = 0-63, medium = 64-80, high = 81+) to run the analyses.

An overall multivariate main effect showed differences in the levels of these measures that could be accounted for by traumatic stress response group, $F [2, 99] = 2.878, p < .024$, and by emotion dysregulation, $F [2, 99] = 9.409, p = .000$. The interaction of traumatic stress response group and emotion dysregulation did not show a significant multivariate effect, $F (2, 99) = 1.640, p = .116$. This indicates that emotion dysregulation did not moderate the relationship between traumatic stress response group and dependent variables of aggression and depression. Covariate effects were found for age, $F (2, 99) = 3.175, p = .047$, and education, $F (2, 99) = 3.159, p = .047$. See Table 8 for MANCOVA results for Research Question 3.

Table 8

Multivariate Effects for Traumatic Stress Response, Emotion Dysregulation, and Dependent Variables of Aggression and Depression controlling for Age and Education (N = 100)

Effect	Pillai's Trace	F	df	Error df	Sig.	Partial Eta Squared
Intercept	.311	19.842	2.0	88.0	.000	.311
Age	.067	3.175	2.0	88.0	.047	.067
Education	.067	3.159	2.0	88.0	.446	.067
TSRG	.121	2.878	4.0	176.0	.024	.061
Emotion Dysregulation	.349	0.409	4.0	178.0	.000	.175
TSRG*Emotion Dysregulation	.137	1.64	8.0	178.0	.116	.069

Note. TSRG = Traumatic Stress Response Group (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015), Emotion Dysregulation (DERS; Gratz & Roemer, 2004)

Table 9

Moderation of Emotion Dysregulation on the Main Effects of Traumatic Stress Response Group and Dependent Variables of Aggression and Depression, controlling for Age and Education (N = 100)

Variable	df	<i>F</i>	<i>p</i>	Partial Eta Squared
Aggression	4	2.169	.079	.089
Depression	4	0.384	.819	.017

Note. TSRG = Traumatic Stress Response Group (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015), Aggression = Anger-Index (STAXI-2; Spielberger, 1999), Emotion Dysregulation (DERS; Gratz & Roemer, 2004), Depression (BDI-2; Beck, 1996).

Table 10

Means and Standard Errors for Traumatic Stress Response, Emotion Dysregulation, and Dependent Variables of Aggression and Depression controlling for Age and Education (N = 100)

	No PTSD (n = 25)		Subthreshold PTSD (n = 34)		Full PTSD (n = 41)	
Variable	M	(SE)	M	(SE)	M	(SE)
Anger-Index	27.9	(2.80)	33.33	(2.02)	35.80	(2.06)
Depression	5.21	(1.78)	7.46	(1.33)	11.96	(1.3)

Note. TSRG = Traumatic Stress Response Group (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015), Aggression = Anger-Index (STAXI-2; Spielberger, 1999), Emotion Dysregulation (DERS; Gratz & Roemer, 2004), Depression (BDI-2; Beck, 1996).

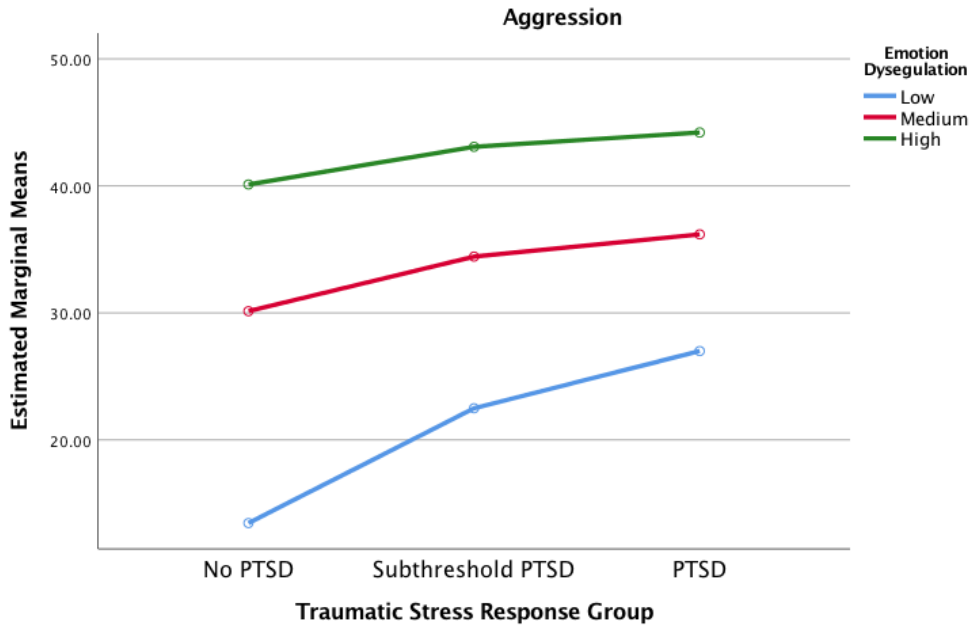


Figure 3. Results for Moderation Effects of Emotion Dysregulation on Interaction of Traumatic Stress Response group and Aggression, controlling for Age and Education Level.

As seen in Table 9, Table 10, and Figure 3, emotion dysregulation was not found to moderate the main effect between traumatic stress response group and aggression, $F [2, 99] = 2.169, p = .079, \text{partial } \eta^2 = .089$. Results do not support Research Question 3a which predicted that emotion regulation would moderate the relationship between traumatic stress response group and aggression.

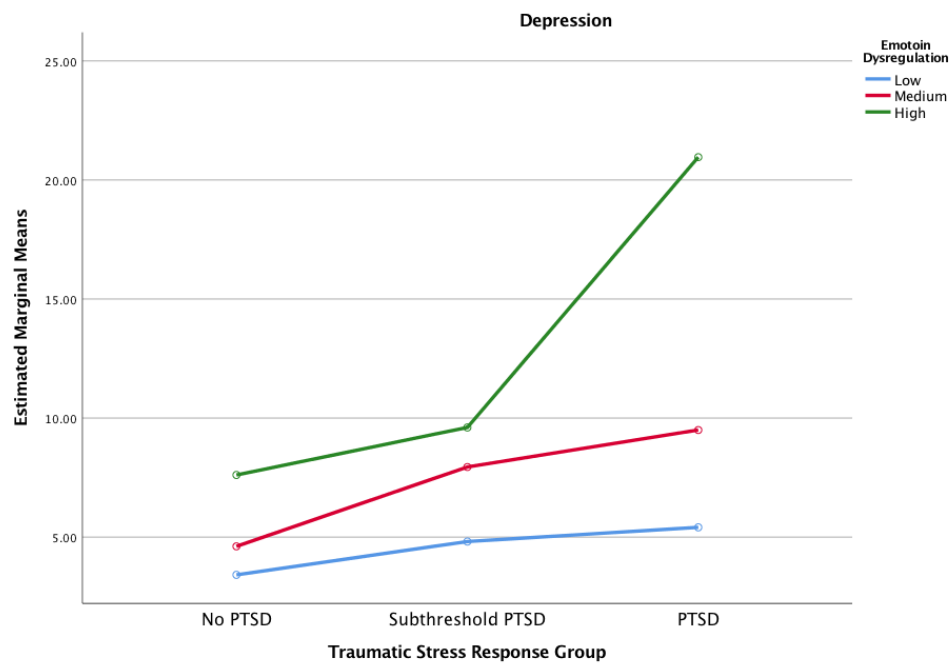


Figure 4. Results for Moderation of Emotion Dysregulation on Traumatic Stress Response group and Depression, controlling for Age and Education Level.

As seen in Table 9, Table 10 and Figure 4, Emotion dysregulation was not found to moderate the main effect between traumatic stress response group and depression, $F[2, 99] = 0.384, p = .819, \text{partial } \eta^2 = .017$. Results did not support Research Question 3b that emotion regulation would moderate the relationship between traumatic stress response group and depression.

Results from the current study indicate that emotion dysregulation did not moderate the interaction between traumatic stress response group and dependent variables of aggression and depression.

Chapter V: DISCUSSION

Summary of Main Findings

The current study aimed to characterize trauma-exposed individuals in the military when their PTSD exposure results in subthreshold clinical presentations, compared to those trauma-exposed individuals with no PTSD symptoms or full PTSD clinical presentations. Previous studies of subthreshold PTSD have consistently indicated subclinical individuals experience significant symptoms and impaired functioning (Friedman et al., 2011), yet research is hampered by inconsistencies in how subthreshold PTSD is defined and assessed. The present study's findings elaborate on existing trauma research by examining anger and aggression as separate constructions in relation to DSM-5 diagnosis of PTSD (APA, 2013). Additionally, the current study marks the first attempt to investigate gender differences in sub-clinical PTSD on dependent variables of distress in U.S. military veterans as research on subthreshold PTSD in women has been limited. Finally, the current study aimed to examine if emotion dysregulation moderated the relationship between traumatic stress response and dependent variables of distress, specifically aggression and depression.

Subthreshold PTSD

The present study conceptualized trauma based upon the traumatic stress response model, viewing trauma-related symptoms as spectrum-based, rather than distinctive diagnostic entity (Ruscio, et al., 2002; Moreau and Zisook, 2002). This model allowed for inclusion of other clinical presentations than full-PTSD, to include subthreshold PTSD, which may also result in symptoms of distress. Previous research studies have found that subthreshold levels of PTSD are associated with significant impairment (Mylle & Maes,

2004; Zlotnick, Franklin, & Zimmerman, 2002), and may predict delayed onset of full PTSD in up to 25.2%, compared to 4.14% with less or no initial symptoms (Carty, O'Donnell, & Creamer, 2006; Smid et al., 2009). Findings from the current study support the need for additional research for individuals experiencing sub-clinical levels of PTSD based on significant differences in reported symptoms of anger, aggression, and depression compared to individuals with no reported PTSD symptoms. Since the subthreshold PTSD population was the primary focus of the current study, grouping methodologies were considered carefully herein. Methodologically rigorous studies have estimated the prevalence of subthreshold PTSD using DSM-IV-TR criteria at 12.6% of the general population. Updates to the diagnostic criteria of PTSD have changed with the release of the DSM-5 in 2013. Due to the lack of current diagnostic criteria for subthreshold PTSD, the current study used DSM-5 diagnostic criteria to establish subclinical cutoffs as found in trauma literature (Mota et al, 2016), which is modeled after previous PTSD research on subthreshold PTSD using DSM-IV-TR criteria (Jakupack et al., 2007; Stein, Walker, Hazen & Forde, 1997). The separation of trauma-exposed individuals with no reported PTSD symptoms and those with subclinical levels posed a challenge for the current study, given the proposed traumatic stress response spectrum model. Symptom severity scores were not used as grouping criteria due to inconsistencies in the research to establish cut-off scores for full PTSD, making the variability for subthreshold PTSD cutoff scores too large to establish reliable cut-off scores for subthreshold-PTSD for no-PTSD symptoms. The establishment of diagnostic criterion cutoffs, as opposed to intensity scores, more closely resembled prevalence rates of subthreshold PTSD in the general population (Jakupack et al., 2007). The grouping

methodologies used in the present study allowed subthreshold PTSD group to be separated from individuals with no trauma symptoms and full-PTSD. This allowed individuals experiencing subclinical levels of PTSD to be measured on dependent symptoms of anger, aggression, and depression.

Traumatic Stress Response and Dependent Variables of Distress

Results from the current study found that individuals with reported subclinical levels of PTSD were significantly different from individuals with no-PTSD on variables of anger-index (i.e. aggression), anger control-in, and depression. Subthreshold PTSD differed from full-PTSD groups on dependent variables of state anger, trait anger, anger-index (i.e. aggression), anger expression-out, and depression. These findings, using DSM-5 diagnostic classification for PTSD, are supported by other studies on subthreshold PTSD using previous DSM-IV-TR diagnostic criteria (Jakupack et al., 2007; Mylle & Maes, 2004). These findings highlight that individuals with subclinical levels of trauma response experience significantly greater levels of aggression and depression than trauma-exposed individuals with no trauma-related symptoms. Findings point to a need for increased sensitivity and understanding of how the response to traumatic events may manifest other than full-PTSD. This highlights the need for additional resources to be employed for the subclinical PTSD population. Specifically, an increased need for PTSD screening in military personal with subclinical trauma response is indicated. In turn, this may lead to increased intervention and treatment for military personnel with lower than clinical levels of PTSD.

Findings for the current study did not support Research Hypothesis 1 that individuals with subclinical levels of PTSD would report significantly higher levels of

anger (e.g. both state and trait) than no-PTSD individuals; however, Research Hypothesis 1 was partially supported as the subthreshold PTSD group reported lower levels of anger (e.g. both state and trait) than full-PTSD group. These findings partially support the traumatic stress response spectrum model in contrast to discrete diagnostic criteria, with subthreshold PTSD group reporting lower than full-PTSD group but not significantly different than no-PTSD group for reported levels of anger. Diagnostically, emotional anger is a specific symptom of PTSD (e.g. Criteria B), meaning that the full PTSD group clinically should report higher levels than no-PTSD, which was reported in the current study. Subthreshold group did not report higher levels of emotional anger than no-PTSD individuals, but did report less than full-PTSD group. The lack of different between the no-PTSD and subthreshold PTSD groups could be due to the dysregulating effect of trauma on one's ability to regulate emotional anger in the context of overwhelming stress associated with traumatic events (Ehring and Quack, 2010).

As stated above, the present study confirmed Research Hypothesis 1, with subthreshold PTSD group reporting higher levels of aggression than no-PTSD group and lower than full-PTSD group. Diagnostically, aggression is classified as an avoidance symptom of PTSD per the DSM-5 (e.g. Criterion C). Indicating that individuals will traumatic reactions should report higher levels of aggression than those with no-trauma exposure and trauma-exposure with no-PTSD symptoms. Findings from the present study supported current trauma literature in regard to individuals with full-PTSD reporting greater difficulties suppressing and inhibiting anger, expressing anger appropriately, and regulating feelings of anger than no-PTSD individuals (Olatunji et al, 2010). This may be best accounted for by the traumatic stress response spectrum hypothesis, as increased

PTSD symptomology are associated with greater dependent symptoms (e.g. anger, aggression, and depression). This could be due to the dysregulating effect of trauma on one's ability to regulate emotional anger, leading to an increase expression of anger in the form of aggressive behaviors (Ehring and Quack, 2010).

The present study elaborated on existing trauma research by separating anger and aggression as separate, but related symptoms due to differences in DSM-5 symptom clusters. Previous literature on PTSD combined symptoms of anger and aggressive behaviors into a single phenomenon, rather than viewing these emotional symptoms as two discrete psychological experiences (Renshaw & Kiddie, 2012; Jakupack et al., 2007). Aggression, but not anger, behaved similarly across traumatic stress response groups in the present study. The current DSM-5 diagnostic classification of PTSD now includes "anger" and "irritability" in Criterion B (alterations in arousal), and "aggressive behaviors" separately in Criterion C (avoidance). If these symptoms are understood and measured as separate symptoms, as opposed to one, it may impact the sensitivity of screening protocols, and subsequent treatment recommendations. This may be especially true for individuals with subclinical and clinical levels of PTSD. Results from the current study indicate that subthreshold PTSD group reports higher levels of aggression, and depression than trauma-exposed individuals with no-PTSD symptoms, which highlights the important of viewing subthreshold PTSD as having greater symptomatology than non-PTSD individuals. These findings could be associated to the attributional process and prior learning according to aggression theorist (Dodge & Crick, 1990). Attribution process and prior learning play an important role in most conceptualizations of aggression and may be particularly salient for combat veterans suffering from PTSD

(Taft, Panuzio, & Niles, 2007). For subclinical and PTSD populations, anger-related thoughts and hostile attributions are likely to be heightened due to prior experiences of trauma, fear, and life-threat, in addition to hypersensitivity to potential threats in the environment (Chemtob et al., 1997).

The present study also confirmed Research Hypothesis 1 regarding reported levels of depression, as subclinical PTSD group reported higher levels of depression than no-PTSD group and lower levels than full-PTSD group. The significant differences between traumatic stress response groups further supports the traumatic stress response spectrum for trauma. Current findings follow PTSD literature on associated rates of depression for individuals with PTSD (Grubaugh et al., 2005; Jakupcak et al., 2011), with depression increasing based on increases in PTSD-severity. This could be due to the dysregulating effect of trauma on one's ability to regulate emotional anger, which may result in feelings of depression (e.g. hopelessness) as these anger-feelings become directed inward (Ehring and Quack, 2010).

In the context of military sampling, findings of the current study support current research findings with military personnel with full-PTSD having higher levels of emotional anger and aggressive behaviors (Novaco et al., 2002; Kotler et al., 2001). Findings from the current study follow trauma literature reporting veterans with subthreshold PTSD were found to have greater levels of anger and aggression than non-PTSD veterans (Jakupcak et al., 2007). Additionally, research on trauma has found that military personnel with full-PTSD report higher levels of depressive symptoms than military personnel with no PTSD symptoms (Thompson et al., 2011). Deployment in a combat zone is not a random process, with individuals who volunteer or are selected for a

combat role are likely to have propensity for risk taking and aggressive behaviors. Furthermore, some military occupations may view aggression as a desirable trait due to its utility in combat situations. Results of the present study highlight measurement challenges for assessing anger and aggression in the context of military culture.

Traumatic Stress Response, Gender, and Dependent Variables of Distress

The present found mixed results for the second Research Hypothesis aimed to address differences in military men and women with traumatic stress response on dependent variables of anger, aggression, and depression. Previous research has viewed aggression as a stable (male) category, and has paid little attention to female aggression (Douglas and Gabriel, 1994). The lack of focus on gender differences may be due to the focus on males in war, with fewer than 5% of the world's armed forces being female (Goldstein, 2001). By further assessing for gender differences, the present study attempted to gain a better understanding of the impact of these associated symptoms for men and women. Additionally, men and women in a military population may exhibit higher levels of dependent symptom of trauma due to potential for combat exposure (e.g. traumatic events) and possible socialization influences associated with military culture (e.g. masculinity). As a result, relatively little to no research exists specifically on gender differences in a subclinical PTSD population, specifically in the veteran population, making the current study the first of its kind.

Previous studies focused on the relationship between traumatic stress response and gender on associated variables of anger have been mixed (Creiver et al, 2014). For the present study, while traumatic stress response groups were significantly different on measures of anger (e.g. state and trait), no significant differences were found for the

interaction of gender and traumatic stress response on reported levels of anger. This indicates that there were no differences in anger levels for men and women by traumatic stress response group. Current research findings did support some research which has revealed, the opposite: that men and women with trauma exposure will report similar levels of anger (Butterfield, 2000). In line with the findings on anger, the current study did support differing trauma research by finding that men and women with full-PTSD report similar levels of trait anger (Galovski, Mott, Young-Xu, and Resick, 2011; Castillo, Baca, Conforti, and Qualls, 2002). Findings from the current study contradict some research on gender differences in PTSD, which states that males with full-PTSD report higher levels of state anger than women (Galovski, Mott, Young-Xu, and Resick, 2011; Castillo, Baca, Conforti, and Qualls, 2002). With regards to subthreshold PTSD, men and women were not significantly different from each other on state or trait anger measure in the present study. These findings support that men and women with subthreshold PTSD are more similar to no-PTSD group rather than full-PTSD group. This could be due sampling bias, as women who decide upon military careers may be more likely to report feeling angry than women in non-military careers. These results could be due to modifications in social representation and gender roles for women in the military population, with women being more likely to report feeling angry than women who are not in military careers. Additionally, reported levels of anger may affect men and women equally in the context of extreme stress associated with traumatic events.

Findings from the current study differed from our expectations and the extant literature, which suggests that men and women may have difference expressions of aggression and depression (Castillo et al, 2011). The present study's aim for Research

Question 2 posed that men and women would differ in aggression based on traumatic stress group, similar to those differences found in the general population. While traumatic stress response groups were significantly different on measures of aggression (e.g. anger-index), no significant differences were found for the main interaction between gender and traumatic stress response research on reported levels of aggression. Thus, Research Question 2 was not supported for gender, traumatic stress response, and aggression.

Literature on gender differences in aggression in trauma-exposed individuals are conflicting. The current study supports current literature which found no meaningful gender differences for interpersonal aggression on outcomes in traumatized individuals, once lifetime exposure to aggressive events was taken into account (Pimlott-Kubiak et al., 2003). Additionally, the current study contradicts studies on trauma and gender that found males with full-PTSD report higher levels of irritability, verbal hostility, indirect hostility compared to women with full-PTSD (Galovski, Mott, Young Xu, and Resick, 2011; Catillo, Baca, Conforti, and Qualls, 2002). Regarding gender differences in subthreshold PTSD group, the current study did not find any statistical differences between men and women on reported levels of aggression. The temporary dislocation of gender norms during wartime does change patterns of gender expression, which may account for a lack of gender differences on reported levels of aggression (Goldstein, 2001). Research on gender roles in war concluded a complex interaction of biology and culture best explain the lack of gender norms during war (Goldstein, 2003). Additionally, women who select a career in the military may have similar profiles of aggressive behaviors as men. This could be due to modifications in social representation and gender roles for women in military population, with women being more able to express anger

overly than women who are not in military careers. This could also be due to sampling bias, as women who decide upon military careers may be more likely to be more overtly aggressive and report than women in non-military careers. Additionally, difficulties with emotional regulation as part of a traumatic stress reaction may affect men and women equally, as they report similar levels of anger and aggression.

No significant differences for reported levels of depression for men and women based on traumatic stress response group were found to support Research Question 2. Findings for the current study support previous research findings that men and women with full-PTSD report similar levels of depression symptomatology (Shalev et al., 1998). The current study expands on the field by finding that men and women with subthreshold PTSD also report similar levels of depression. In non-traumatized populations, women report higher rates of depression than men (Luxton, Skopp, & Maguen, 2010). Gender role socialization and self-esteem issues have been implicated as accounting for these differences (Kaplan, 1986). The lack of gender differences for depressive symptoms in trauma-reporting individuals may signal a lack of gender norms in a military population (Goldstein, 2003), as women often report higher rates of depression in the general population. Additionally, most studies found that subthreshold PTSD groups had significantly higher depression scores than no-PTSD groups (Gelkopf et al., 2013), which the current study followed. The equaling effect of reported levels of depression of men and women in subthreshold and full-PTSD groups suggest that traumatic stressors impact men to the point of raising to depressive levels of women, who report higher levels of depression in civilian populations (Luxton, Skopp, & Maguen, 2010).

Traumatic Stress Response, Emotion Regulation, and Dependent Variables of Distress

Research Question 3 of the current study found no impact of emotion dysregulation on the relationship between traumatic stress response groups and dependent variables of aggression and depression. The ability to regulate one's own emotions may underpin the connection between trauma and associated symptoms of distress (Gratz & Roemer, 2014). Literature in the area of trauma (Weiss, Tull, Viana & Anestis, 2012) suggests that full-PTSD has been found to be positively associated with overall emotional dysregulation and specific dimensions of lack of emotional acceptance, difficulties engaging in goal-directed behaviors, and controlling impulse behaviors when upset, limited access to emotion regulation strategies, and lack of emotional clarity (Ehring & Quack, 2010; Tull et al., 2007). The present study found significant differences between the traumatic stress response groups for reported levels of emotion dysregulation, which signals significantly greater levels of emotion dysregulation in individuals with subthreshold PTSD compared to no-PTSD individuals. Current findings support current theoretical and empirical literature on the association between traumatic stress response and emotion dysregulation (Weiss, Tull, Anestis, & Gratix, 2013; Ehring & Quack, 2010; van der Kolk, Roth, & Pelcovitx, 1993). However, findings from the current study found no moderation effects of emotion dysregulation the relationship between traumatic stress response groups and dependent variables of aggression and depression. This signals that the psychological effects of traumatic events (e.g. PTSD symptoms) directly influences symptoms of aggression and depression, independent of disruptions to emotion regulation. To our knowledge, this is the first study to examine whether emotion dysregulation level moderated the impact of subthreshold or full PTSD on aggression or

depression. Contrary to predictions, these findings did not show that the level of emotion regulation influenced the relationships between traumatic stress response group and reported aggression and depression.

Clinical Implications

The key clinical implication of the present study follows findings that subthreshold PTSD symptomology were associated with a higher level of aggression and depression than those in the control group. These findings support the need for increased screening, assessment, and treatment for trauma-exposed individuals who may have subclinical levels of PTSD, but still need preventative or treatment services for higher levels of distress as measured by anger, aggression and depression scales.

Primary findings from the current study directly support previous literature on PTSD populations, indicating that subthreshold PTSD population show significantly higher levels of anger, aggression, and depression than trauma exposed individuals who do not report any trauma symptoms. Findings from the current study highlight the need for increased sensitivity in screening and assessment measures for trauma-exposure individuals to help identify possible sub-clinical levels of PTSD. The identification of a subthreshold PTSD points to increased anger, aggression, and depression symptomatology compared to those individuals with no trauma related symptoms.

Individuals with reported subclinical levels of PTSD require additional treatment to address their symptoms. Additionally, due to increased rates of delayed development of full-PTSD in the subthreshold PTSD group (Marshall, Olfson & Hellman, 2001), increased awareness for this population is critical based on their significant difference from individuals with no reported PTSD symptoms. Moreover, early intervention may

directly impact future onset of full trauma symptoms (Carty, O'Donnell, & Creamer, 2006), which occurs in the subclinical PTSD population.

Findings from the current study are mixed compared to current trauma literature and gender differences. A key finding of the current study is the lack of differences between trauma-exposed men and women, despite gender differences existing in the general population. These findings suggest that the potential “buffer” for men to report less depression but more aggression than women is removed when exposed to traumatic events. This might be due to the effects traumatic stressors have on the ability to regulate one's emotions (e.g. anger and depression), which may lead to further disruption to the level of emotional expression (e.g. aggression). Additionally, gender socialization in the military culture differs from that of civilian population, with men and women trained equally. Routine military training also requires men and women to be exposed to and participate in aggressive acts and violence, which may account for the lack of differences between gender groups.

Limitations and Future Directions

In addition to the limitations mentioned above, there are others that affect the interpretation of the results of this study. Anonymous recruitment was elected to help with increasing the sample size and to address possible resistance due to perceived negative impact. Consequently, internal validity was lowered by the small sample size and the method to categorize subthreshold PTSD group using updated diagnostic classification per the DSM-5. Sample size limitations also limited the ability to perform more robust analyses on gender differences and traumatic stress response groups.

Additionally, there was a reliance on self-report questionnaires rather than using “gold-standard” clinical interviews, such as the Clinician-Administered PTSD Scale (CAPS) (Weathers et al., 2013) for assessing PTSD severity. Self-report measures may increase the variability of reported PTSD symptoms, especially the effects of under reporting trauma-related symptoms as part of the “avoidance” cluster of PTSD. Using other measures, such as the previously suggested interview, would increase confidence that traumatic event cue exposure is not related to emotion recognition. Another limitation of the present study is the retrospective cross-sectional design which limits the causal relationships that can be inferred. The study design also limits the ability to control for pre-deployment exposure to traumatic events (e.g. childhood trauma, rape, etc.).

Conclusion

In terms of advancement, the current study demonstrates how further understanding is needed for trauma-exposed individuals with some symptoms of trauma. The current study aimed to bring awareness to sub-clinical PTSD individuals and how they differ in associated symptomatology, especially from individuals with no reported trauma symptoms. Overall the present findings support the need for more detailed screening for trauma-exposed individuals to assess for subclinical levels, specifically, military screening procedures include self-report measures and only recommend treatment for those reporting full-PTSD levels of PTSD. Additionally, these findings support the need to increase intervention and treatment for associated symptoms of distress in sub-clinical populations, as they differ significantly than individuals with no reported PTSD symptoms. The current study’s findings on gender differences, or lack thereof, with increasing levels of traumatic stress response alludes to a decrease in the

“buffer” for men and women normative sample. Finally, the present study’s findings indicate that emotion dysregulation does not significantly influence the relationship between traumatic stress response and dependent symptoms of aggression and depression.

APPENDIX

Means and Standard Errors of Dependent Variables of Distress by Interaction Effect of Gender and Traumatic Stress Response Group (N=100)

Variable	Gender	No PTSD (n = 25)		Subthreshold PTSD (n = 34)		Full PTSD (n = 41)	
		M	(SE)	M	(SE)	M	(SE)
State Anger	Men	21.33	2.38	20.61	2.14	27.89	1.73
	Women	18.87	1.78	20.67	1.49	25.78	1.50
Trait Anger	Men	15.87	1.70	16.59	1.52	20.71	1.24
	Women	14.28	1.28	16.09	1.06	20.72	1.07
Anger-Index	Men	22.40	4.38	30.08	3.93	37.89	3.18
	Women	21.95	3.29	31.42	2.74	40.41	2.76
Anger Expression-Out	Men	13.38	1.23	14.06	1.10	16.47	0.89
	Women	11.85	0.92	13.58	0.77	15.31	0.78
Anger Expression-In	Men	14.32	1.28	18.00	1.15	20.05	0.93
	Women	15.31	0.96	16.13	0.00	19.10	0.81
Anger Control-Out	Men	26.50	1.60	25.07	1.46	22.83	1.18
	Women	27.36	1.22	24.39	1.02	21.50	1.03
Anger Control-In	Men	26.79	1.72	24.91	1.55	23.80	1.25
	Women	25.86	1.29	21.89	1.08	20.49	1.09
Depression	Men	3.04	2.56	3.41	2.30	13.14	1.86
	Women	4.67	1.92	8.42	1.60	16.55	1.62

Note. TSRG = Traumatic Stress Response Group (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015), State Anger, Trait Anger, Anger Expression-Out, Anger Expression-In, Anger Control-Out, Anger Control-In (STAXI-2; Spielberger, 1999), Depression (BDI-2; Beck, 1996).

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